

Polychlorinated Biphenyl Abatement Plan

For the Site:

Horace Mann School
687 Watertown Street
Newton, MA.

Prepared for:

City of Newton

C/o Universal Environmental Consultants
12 Brewster Road
Framingham, MA. 01702

Prepared by:

Lord Associates, Inc.
1506 Providence Highway, Suite 30
Norwood, MA 02062

Project No. 1866

July, 2012

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1.0 Introduction:

1.1 Purpose & Background:

Pursuant to 40 CFR 761.61(a) and (c), and 761.79(h) of the Toxic Substances Control Act (TSCA), Lord Associates, Inc. (LAI) is submitting this Polychlorinated Biphenyl (PCB) Abatement Plan for the site referred to as the Horace Mann School at 687 Watertown Street in Newton, Massachusetts (the "Site"). The need for the Abatement Plan was triggered by the identification of PCBs in exterior window caulking and glazing in preparation of a window replacement project.

The Site is located near the intersection of Watertown and Albemarle Street in a mixed-use suburban setting located in Newton, Massachusetts. The subject building serves as an elementary school for a student population of approximately 370, grades K-5. The present structure was built in 1964. A Site Locus is presented in **Figure 1**.

In planning for the **window replacement** project of the building, the City of Newton contracted with the architectural firm KBA Architects of Charlestown, Massachusetts to create the new design. To prepare for the work, Universal Environmental Consultants (UEC) was hired to collect representative samples of building material likely to be affected. Based on the construction history of the building, it is likely that **similar caulk was used to seal all windows** in the building. Therefore, in March of 2012, UEC collected five samples of existing window frame caulk and four samples of window glazing for the analyses of PCBs. Concentrations of PCB Aroclor 1248 in excess of 50 milligrams per kilogram (ppm) were detected in all four samples of caulk collected. Window glazing in two samples exhibited concentrations of both Aroclor 1254 and 1248 at concentrations greater than 1 ppm. Subsequent sampling of adjacent masonry indicates that PCBs less than 1 ppm may be present. Samples of soil surrounding the building underneath the windows had concentrations of Aroclor 1254 less than 1 ppm.

The Abatement Plan proposes to remove all windows with PCB containing caulking for off-site disposal as a "bulk-product waste". The windows will be replaced with a new design.

1.2 Contact Information:

The following information pertinent to the persons assuming responsibility for conducting the Abatement Plan (i.e., the Potentially Responsible Party, PRP) is provided as follows:

PRP Contact Information:

Name:	City of Newton, c/o Stephanie Kane Gilman, Commissioner
Address:	Public Buildings Department 52 Elliot Street Newton, MA. 02461
Relationship:	Commissioner
Telephone:	617-796-1600

Environmental Consultants/Licensed Site Professional Information:

Name: Ralph J. Tella, Lord Associates, Inc.
LSP#: 7473
Address: 1506 Providence Highway, Suite 30, Norwood, MA.
Telephone: (781) 255-5554 x14

2.0 Site Description:

2.1 Building Description

The Horace Mann School building is a three-story masonry and steel structure (one story is below grade) of approximately 39,847 square feet. There are no windows in the below-grade floor which is used for a mechanical room, storage, gym, and kitchen. The upper floors features a concrete block first floor, surrounded with an approximate 12-foot concrete apron, and brick second floor which over-hangs the first floor concrete apron. On the upper floor, the windows are framed by white-painted concrete. No caulking contacts the brick. On the ground floor, the opening is framed by the concrete block. Beyond the footprint of the building are landscaped and paved areas. **The first floor is surrounded by concrete.** The building was constructed on level ground. (See photographs in **Appendix A**).

2.2 Land Use and Surrounding Receptors:

The property on which the School building is located is a mixed-use school campus and recreational (Albemarle Park) area along Watertown Street. The School provides education from kindergarten through Grade 5. Current and foreseeable future use is similar. Potential receptors include students, visitors, faculty and staff. The closest surface water body is the Cheesecake Brook approximately 100 feet to the west. There is no other nearby surface water bodies, wetlands, or critical wildlife habitats.

2.3 Nature and Extent of PCB Contamination:

Representative samples of window frame caulking and glazing were collected by UEC on March 7, 2012 by manual cutting. See **Figures 2 & 3** for the locations of these samples. Each of the samples appeared to be the same caulk material. The samples were extracted via EPA Method 3540C and analyzed via EPA Method 8082 by EMSL Analytical, Inc. These results indicate that PCBs in the form of Aroclor 1248 are likely present at concentrations greater than 50 milligrams per kilogram (mg/kg), or roughly parts per million (ppm) in the gray exterior window caulk and greater than 1 ppm in the bronze window glazing used throughout the exterior of the building. There was no caulk observed in the interior of the window system. The results of PCB testing are summarized on **Table 1**. Copies of the original lab reports are provided in **Appendix B**.

To determine if the PCBs in the exterior window caulking had leached into the adjacent building materials, samples of exterior concrete painted block located immediately adjacent to the windows were collected by UEC on March 14 and 26, 2012. Samples were collected from a depth of 0.5 inches, and a distance of 1 and 3-inches from the window opening. The samples were extracted via EPA Method 3540C and analyzed

via EPA Method 8082 by EMSL Analytical, Inc. These results indicate that PCBs in the painted block samples collected immediately adjacent to the caulk were present at concentrations less than 1ppm. To determine if PCBs had leached from the caulk onto adjacent soil located below the windows, seven (7) samples were collected from the top three inches below the grass area directly underneath the windows of the north, west and south sides of the **second floor overhang**. Note that access to soil on the east side is limited, as that side is occupied by a modular classroom and equipment trailer. Note that the majority of the area underneath the first floor windows is a concrete surface (see attached photographs). Five (5) samples of the concrete surface were collected on June 18, 2012 using the EPA SOP for sampling porous surfaces (see **Appendix C**).

The results of the analyses were that PCBs (Aroclor 1254) was detected at concentrations < 1 ppm in the soil. No PCBs were detected in the concrete samples. Copies of the original lab reports are provided in **Appendix B**.

Table 1
Summary of PCB Analyses
Mg/Kg, dry weight

Sample ID	Date	Material	Location	Aroclor 1248	Aroclor 1254
1	3/7/2012	Caulk	Window Frame, second story	3,200	<470
2	3/7/2012	Glaze	Window Frame, second story	1.8	1.4
3	3/7/2012	Caulk	Window Frame, first floor	4,000	<400
4	3/7/2012	Glaze	Window Frame, first floor	0.86	1.8
5	3/7/2012	Caulk	Window Frame, second story	2,500	<330
6	3/7/2012	Glaze	Window Frame, second story	<0.81	<0.81
7	3/7/2012	Caulk	Window Frame, first floor	1,700	<0.16
8	3/7/2012	Glaze	Window Frame, second floor	<0.91	<0.91
9	3/7/2012	Caulk	Window Frame, first floor	990	<0.17
1	3/14/2012	Painted Block	Window @1", second floor	<0.50	<0.50
2	3/14/2012	Painted Block	Window @1", second floor	0.79	<0.50
3	3/14/2012	Painted Block	Window @1", first floor	0.98	<0.50
4	3/14/2012	Painted Block	Window @3", second floor	<0.50	<0.50
5	3/14/2012	Painted Block	Window @3", second floor	<0.50	<0.50
6	3/14/2012	Painted Block	Window @3", first floor	<0.50	<0.50
7	3/14/2012	Soil	South side	<0.054	0.170
8	3/14/2012	Soil	North side	<0.059	0.680
9	3/14/2012	Soil	West side	<0.057	0.340

LS-1	6/13/2012	Soil	North Side	<0.051	<0.051
LS-2	6/13/2012	Soil	West Side	<0.084	<0.084
LS-3	6/13/2012	Soil	Southwest Side	<0.041	0.492
LS-4	6/13/2012	Soil	Southeast Side	<0.114	<0.114
LS-5	6/18/2012	Soil	East Side	<0.375	0.676
1	3/26/2012	Painted Block	Window south side, second floor	<0.50	<0.50
2	3/26/2012	Painted Block	Window west side, first floor	<0.50	<0.50
3	3/26/2012	Painted Block	Window west side, second floor	<0.50	<0.50
LC-1	6/18/2012	Concrete	Northeast side	<0.178	<0.178
LC-2	6/18/2012	Concrete	Northwest side	<0.088	<0.088
LC-3	6/18/2012	Concrete	West Side	<0.096	<0.096
LC-4	6/18/2012	Concrete	Southeast Side	<0.096	<0.096
LC-5	6/18/2012	Concrete	Southwest Side	<0.091	<0.091

3.0 Abatement Plan

3.1 Plan Objectives:

The objectives of this Abatement Plan are to properly remove all materials identified as PCB containing bulk material for off-site disposal. The cleanup goal for any PCB remediation waste identified or generated will be <1.0 ppm.

There are **sixty windows** that will be removed under this Plan. Caulking was used on **all four sides**, so there is approximately **1,850 lineal feet** of caulking.

The Building will **not be occupied** during this work.

3.2 Work Plan:

3.2.1 PERMITS AND COMPLIANCE:

- A. The Contractor shall assume full responsibility and liability for compliance with all applicable Federal, State, and local laws, rules, and regulations pertaining to Work practices, protection of Workers, authorized visitors to the site, persons, and property adjacent to the Work.
- B. The Contractor shall submit to the Consultant and City the plan for managing the waste including all collection, storage, disposal and decontamination practices/waste disposal at least seven days prior to commencement of work.

- C. Perform PCB related Work in accordance with EPA Regulations at 40 CFR 761.1 (Toxic Substances Control Act), MADEP Hazardous Waste Regulations 310 CMR 30, OSHA Regulations at 29 CFR 1910.1000, as specified herein. Where more stringent requirements are specified, adhere to the more stringent requirements.
- D. The Contractor must maintain current certificates of training, licenses or registrations pursuant to OSHA, MADEP and EPA regulations for all Work related to this Project, including the removal, handling, transport, and disposal of hazardous and industrial waste.
- E. The Contractor shall be prepared to obtain an EPA ID number if so directed by the City.

3.2.2 WORK AREA PREPARATION:

- A. PCB caution signs shall be posted at all approaches to the PCB Work Area. Post all emergency exits as emergency exits only on the Work Area side, post with PCB caution signs on the non-Work Area side. Provide all non-Work Area stairs and corridors accessible to the PCB Work Area with warning tapes at the base of stairs and beginning of corridors. Warning tapes shall be in addition to caution signs.
- B. Access to areas of work shall be enclosed with a temporary fence and regulated to prevent unauthorized visitors. The fence will be locked during non-working hours.
- C. For Removal (to be performed from outside):
 - 1. All ground surfaces exterior to the work area shall have a layer of 6 mil polyethylene sheeting, continuously attached to the building face and laid down on the surface below the exterior abatement work area, at least 10 feet wide or to the furthest point of gravity fall for dislodged debris by methods used, whichever is further. During work on the upper floor, the plastic sheeting will be extended another 10 feet beyond the concrete apron onto the soil.
 - 2. All operable windows within the work area and 25 ft. from all sides of the work area shall be closed.
 - 3. At window opening isolate HVAC equipment intakes by installing plastic sheeting over the opening to minimize creating airborne dust inside the building.
 - 4. All window openings within the work area will be sealed from the interior of the building with plastic sheeting.

3.2.3 REMOVAL OF PCB MATERIALS:

- A. PCB-containing materials (window systems) shall be removed in accordance with the Contract Documents and the approved PCB Work Plan.
- B. Non-PCB items such as adjacent masonry from which PCB materials are removed shall be decontaminated by physical or chemical means (such as stripper) such that no *visible* residue remains. The removal of the PCB materials may require the use of scrapers, solvents, mastic

removal chemicals, or other methods/procedures to ensure complete removal. Post abatement verification sampling will be done on these surfaces in accordance with **Section 3.4.1** of this Plan.

- C. Mechanical cutting or grinding of PCB materials is not permitted, unless the equipment has factory- equipped HEPA filtered exhaust.
- D. If window frame cutting is necessary for removal, remove accessible glazing/caulking that could be disturbed before cutting building components.
- E. All removed PCB material shall be placed into 6 mil plastic disposal bags or other suitable container upon detachment from the substrate. Large components with PCB material or PCB residue shall be wrapped in one layer of 6 mil polyethylene sheeting. Sharp components likely to tear disposal bags shall be placed in fiber drums or boxes and then wrapped with sheeting.
- F. Power or pressure washers are not permitted for PCB removal or clean-up procedures.
- G. All construction and demolition debris determined by the Environmental Consultant to be contaminated with PCB shall be handled and disposed of as PCB waste. If the 40 CFR 761 Subpart S double wash-rinse technique is used to decontaminate non-porous surfaces such as movable equipment, tools, and sampling equipment, sampling is not required and the material may be considered non-PCB.
- H. All PCB waste (windows) must be located at or near the point of generation, under the control of the Project Supervisor. The waste will be moved the same day of generation to a Container Storage Area (CSA) or off-site. Waste may be stored at the CSA for 90 days, during which labeling, inspections, and other requirements must be met as described in 40 CFR 761.
- I. Closure of the CSA. If an EPA ID number and CSA were created specifically for the PCB removal work, the Contractor must also close out the CSA and the Consultant shall notify the MADEP that the hazardous waste activity has concluded, and that the storage area is to be closed.
- J. Personal protective equipment, including respirators, shall be utilized and worn during all removal operations until the Work Area is cleared by the Abatement Project Monitor (APM).
- K. Following completion of each shift and during active work, the exterior poly sheeting will be cleaned of visible debris and replaced as necessary. The decontamination procedures in **Section 3.2.4** shall be followed.

3.2.4 EQUIPMENT AND AREA DECONTAMINATION:

- A. When removal of PCB materials is completed, the decontamination process shall consist of vacuuming (with a HEPA filter), wet wiping/mopping and a repeated vacuuming (with a HEPA

filter) of the entire work area. All ground cover and adjacent building surfaces in and around the work area must be free of dust generated during the work. Dispose of vacuum contents as PCB Remediation Waste.

- B. Decontaminate all movable tools and equipment before removal from the work area in accordance with 40 CFR 761 Subpart S double wash-rinse technique. The contractor work plan will specify decon procedures (including identification of solvents used), where the decon area will be located, as well as any decon waste generated stored.
- C. Based on visual observation, if dust or debris has migrated through the plastic dust barriers to areas of the building other than the immediate work area, those areas shall be incorporated into the work area and thoroughly decontaminated to ensure all visible dust generated by the activity is eliminated.
- D. Dust barriers and other protective sheeting shall be placed in disposable construction bags and disposed of as PCB Remediation Waste.
- E. Upon completion of decontamination and removing temporary dust barriers, a final inspection shall be performed by the Contractor and APM.

3.3 Schedule:

Planning work will commence once EPA approval is obtained. A definitive work schedule will be prepared once the project has been successfully bid and awarded.

3.4 Quality Control and Assurance Plan:

3.4.1 Post Abatement Verification Sampling:

Post Abatement Verification Sampling will follow alternative sampling procedures as allowed under 40 CFR 761.79(h). Following the removal of all PCB Material, a visual inspection of the work site area will be performed to verify the removal of all such visible (caulk) material and to collect confirmatory samples from the area for laboratory analyses. Samples will be collected from adjacent material substrate using the EPA SOP for porous surfaces (drilling) to a depth of 0.5", placed in zip-lock bags and delivered to the lab under chain-of-custody protocol for confirmatory analyses. The collection of confirmatory samples will be at a frequency of four per window (one from each side) for the first five windows removed. If the results of the first five windows meet the remediation goal of <1 ppm, one sample will be collected from the each of the remaining windows (a minimum of 75 samples). See **Appendix C** for EPA Standard Operating Procedures for Sampling Porous Surfaces for PCBs.

In the event that results are obtained that are greater than 1 ppm, initially the area will be re-inspected and re-sampled to rule out lab error. At this time, samples will be collected at a greater depth of 1" and 2" to establish the extent of migration. If the re-analyses is correct, the following contingency is planned per **section 3.5**. All

remediation waste >1 ppm will be removed. This likely will mean the first brick or block easily removed for replacement with new.

Wipe and Air Sampling

To determine if residual dust or particles impacted by PCBs have migrated beyond the work area, wipe samples will be collected at the following frequency:

1. Seven samples will be collected from the "Street Level": Samples will be collected from the mechanical room, upper assembly room, art room, health room, upper gymnasium, kindergarten and one of the lobbies.
2. Five samples will be collected from the "Upper Level": Samples will be collected from a conference room, east side classroom, teacher's room, south side classroom, and library.
3. For rooms where there are no desk tops present, but the room is not empty, the wipe sample will be collected from the surface of the most central furniture object in the room, such as a bookcase or table top.
4. During the window replacement project, if furniture is not moved from the room, all moveable furniture will be covered by poly sheeting.
5. For the post-abatement sampling, the following window sizes are being removed:
 - a. Street Level: 45" x 91"
 - b. Upper Level: 43" x 102"
6. No caulk is visible around the exterior doors.

Wipe samples will be collected from a desk top in the approximate middle of the floor in each room, or if the room is empty, the floor. The method of wipe sampling will be as specified in 40 CFR 761, Subpart P. A cleanup standard of <1 ug/100 cm² will be used for wipe samples.

As school will not be in session during the abatement process, air monitoring for Total Dust via portable dust monitors will be used to monitor ambient air conditions in the work area. A Total Daily Dust (PM10) EPA National Ambient Air Quality Standard of 150ug/M³ will be used as the action limit to cease work and institute engineering controls such as vacuuming or misting to limit the generation of dust.

3.4.2 Laboratory Methods & Associated QA/QC

The subcontracted laboratory will be National Environmental Laboratory Accreditation Program (NELAP) certified and follow EPA Method 3540C for soxhlet extractions and Method 8082 for gas chromatography analysis. A blind duplicate sample will be submitted at the 10% level. Intra-laboratory QA/QC data including matrix spike recovery and duplicates will be reported. Any exceptions will be discussed in a lab report narrative.

All reported data will be validated for Precision, Accuracy, Representativeness, Completeness, Comparativeness, and Sensitivity (PARCCS). In lieu of established QA/QC parameters for caulk, brick, and mortar, the following accuracy and precision parameters for soil will be used to evaluate these data:

Table 2
Laboratory QA/QC Parameters

Analyte	Matrix	Analytical Method	Reporting Limit	Precision (RPD%)	Accuracy (% LSC rec)
Aroclor 1016	Soil	8082	500 µg/Kg	50	38-158
Aroclor 1221	Soil	8082	500 µg/Kg	50	38-158
Aroclor 1232	Soil	8082	500 µg/Kg	50	38-158
Aroclor 1242	Soil	8082	500 µg/Kg	50	38-158
Aroclor 1248	Soil	8082	500 µg/Kg	50	38-158
Aroclor 1254	Soil	8082	500 µg/Kg	50	38-158
Aroclor 1260	Soil	8082	500 µg/Kg	50	38-158

3.5 Contingency Plan:

In the event that concentrations of PCB bulk waste > 50 ppm is identified in remaining building materials following the post-cleanup quality control sampling, that material will be marked for additional cleanup (i.e., removal) in accordance with the objectives of the Plan.

In the event that concentrations of PCB remediation waste >1 ppm is identified in remaining building materials following cleanup, that material will also be marked for additional cleanup (i.e., removal) as Bulk PCB Waste.

4.0 Remedial Waste Management:

All PCB material removed for off-site disposal will be managed in accordance with **Section 3.2.3** of this plan until transported to the approved disposal facility. While on-site, the waste containers shall be labeled with PCB warning labels as specified at 40 CFR 761.40 & 45, and stored in accordance with 40 CFR 761.65. The waste containers will be transported under a Uniform Hazardous Waste Manifest by a MADEP licensed transporter, and marked "Polychlorinated biphenyl, solid mixture UN 3432", in accordance with DOT 49 CFR Parts 171 and 172.

- All PCB Bulk Product Waste (e.g., windows) will be disposed of at a RCRA Subtitle C facility approved to accept TSCA waste.
- Any building materials or non-liquid decontamination wastes identified as PCB Remediation Waste will also be disposed of in the roll-off containers used for the disposal of Bulk Product Waste.

- Liquid wastes will be placed in a closed-top 55-gallon drum for disposal pursuant to 40 CFR 761.60.

5.0 Maintenance and Monitoring:

No continuing maintenance or monitoring will be required.

6.0 Notifications and Public Involvement:

Public notification of remedial work will be made to the faculty, staff, City School Department, Board of Health and Building Inspector Department at least one week in advance. A sample copy of said notice is provided in **Appendix C**.

7.0 Record Keeping and Reporting Conditions:

All records and documents required by 40 CFR 761, including Subparts J and K shall be kept on-site in a centralized location, made available for inspection by EPA. These records and documents include:

- Records of Inspections and daily logs
- Decon procedures
 - Abatement Plan & Contractor Work Plan
 - Health and Safety Plan, including MSDS
 - Copies of Uniform Hazardous Waste Manifests
 - Certificates of Disposal

The City will submit a final closure report to the EPA within 60 days of the completion of the project. This report will include:

- Project Narrative
- Photo-documentation of abated areas
- Characterization and confirmation sampling analytical results with photo-documentation of sampling areas
- Copies of laboratory chain-of-custody forms
- Field and lab QA/QC checks
- Estimate of Quantity of PCB waste disposed of and the size of the decontaminated area(s)
- Copies of manifests and/or bill of lading forms
- Copies of certificates of disposal or similar certifications issued by the disposal facility.

FIGURES

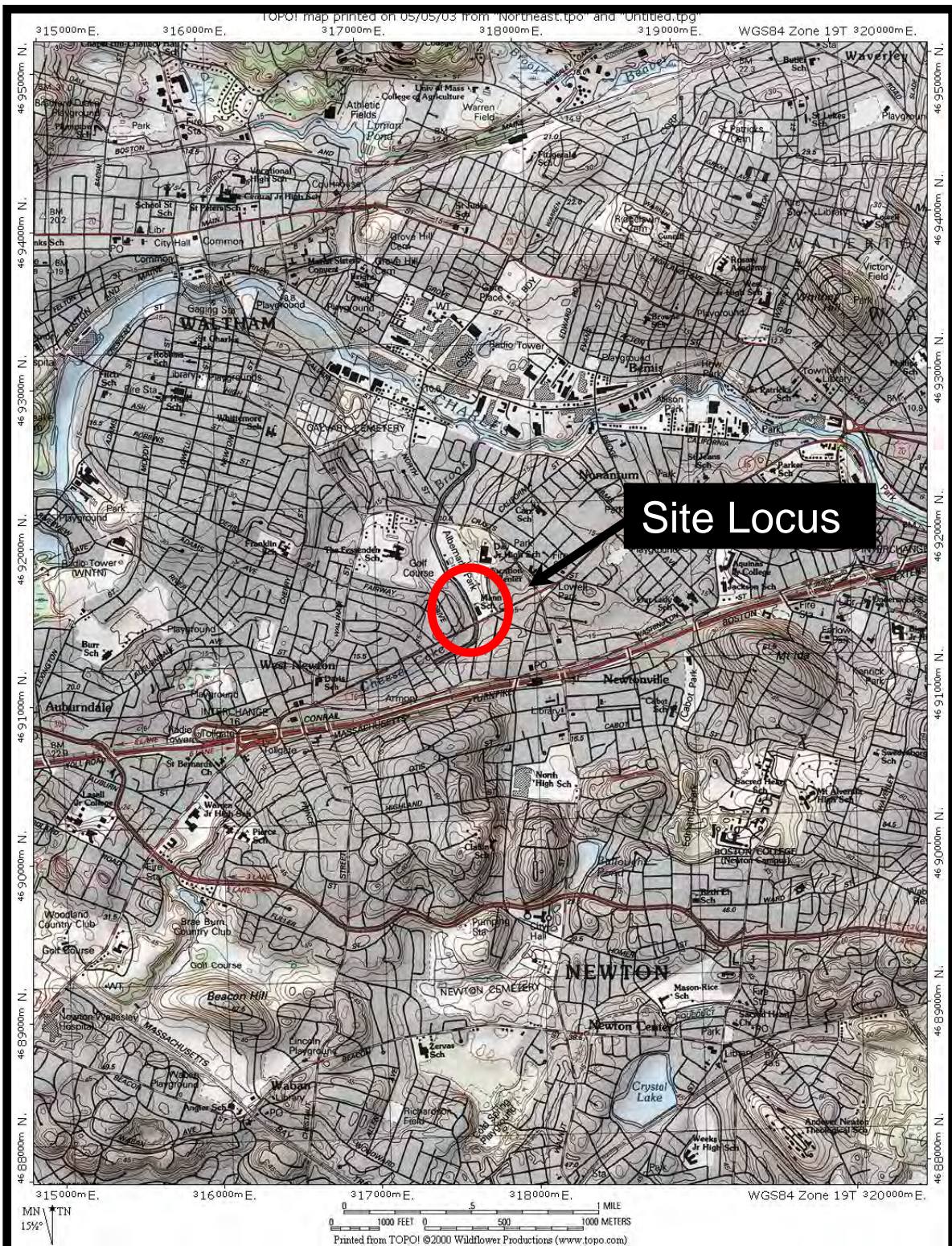


Figure 1. Site Locus
 Horace Mann School
 687 Watertown Street
 Newton, MA

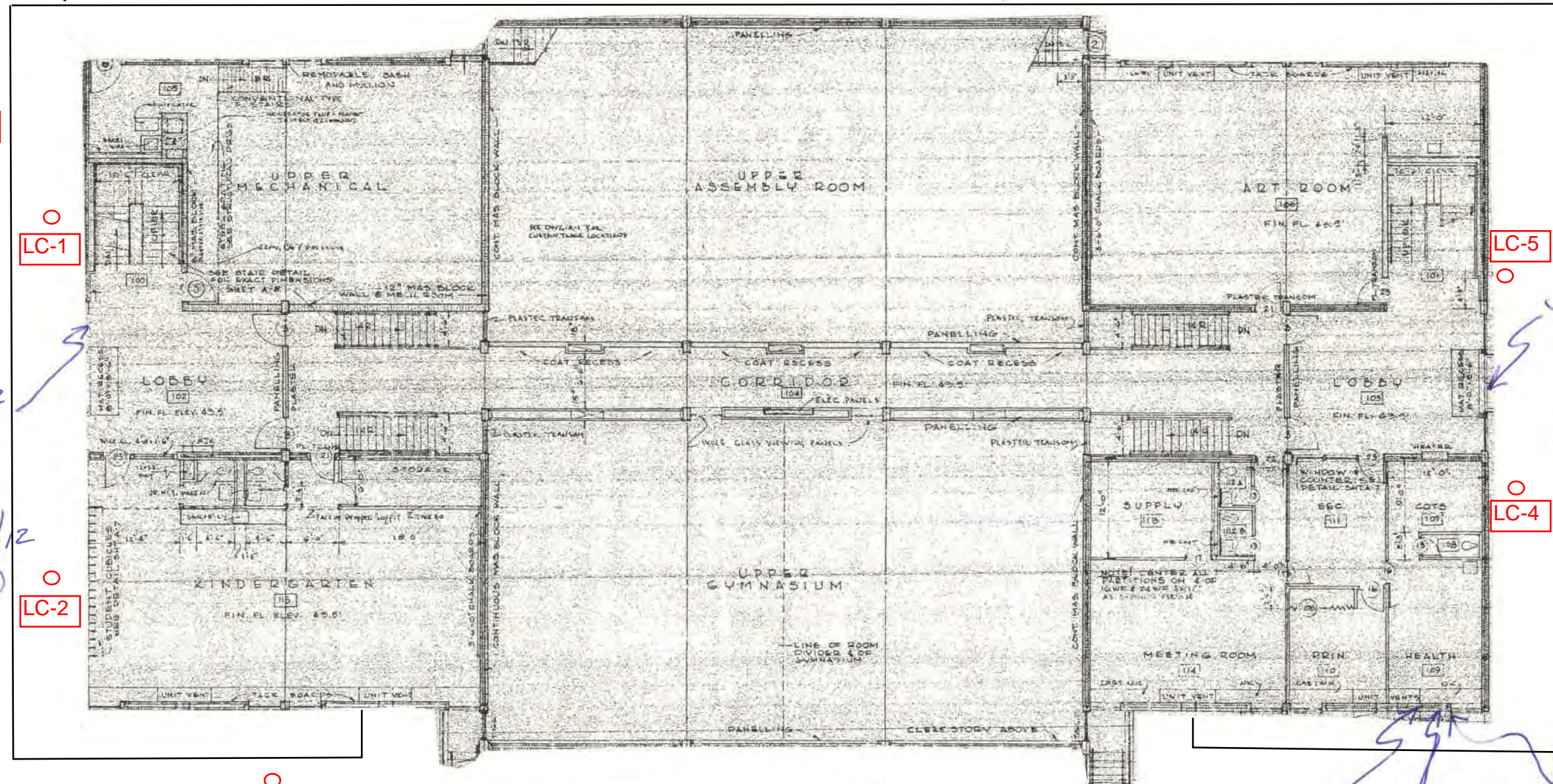
prepared by:
Lord Associates, Inc.
 520 Providence Hwy, Suite 8
 Norwood, MA 02062
 Voice: 781.255.5554
 Fax: 781.255.5535



Horace Mann School
Newton, MA

SCALE: 1" = 25.6'

CONCRETE APRON



LS-5

LS-1

LC-1

LC-5

LC-2

LC-4

LS-4

LS-2

LC-3

LS-3

NORTH

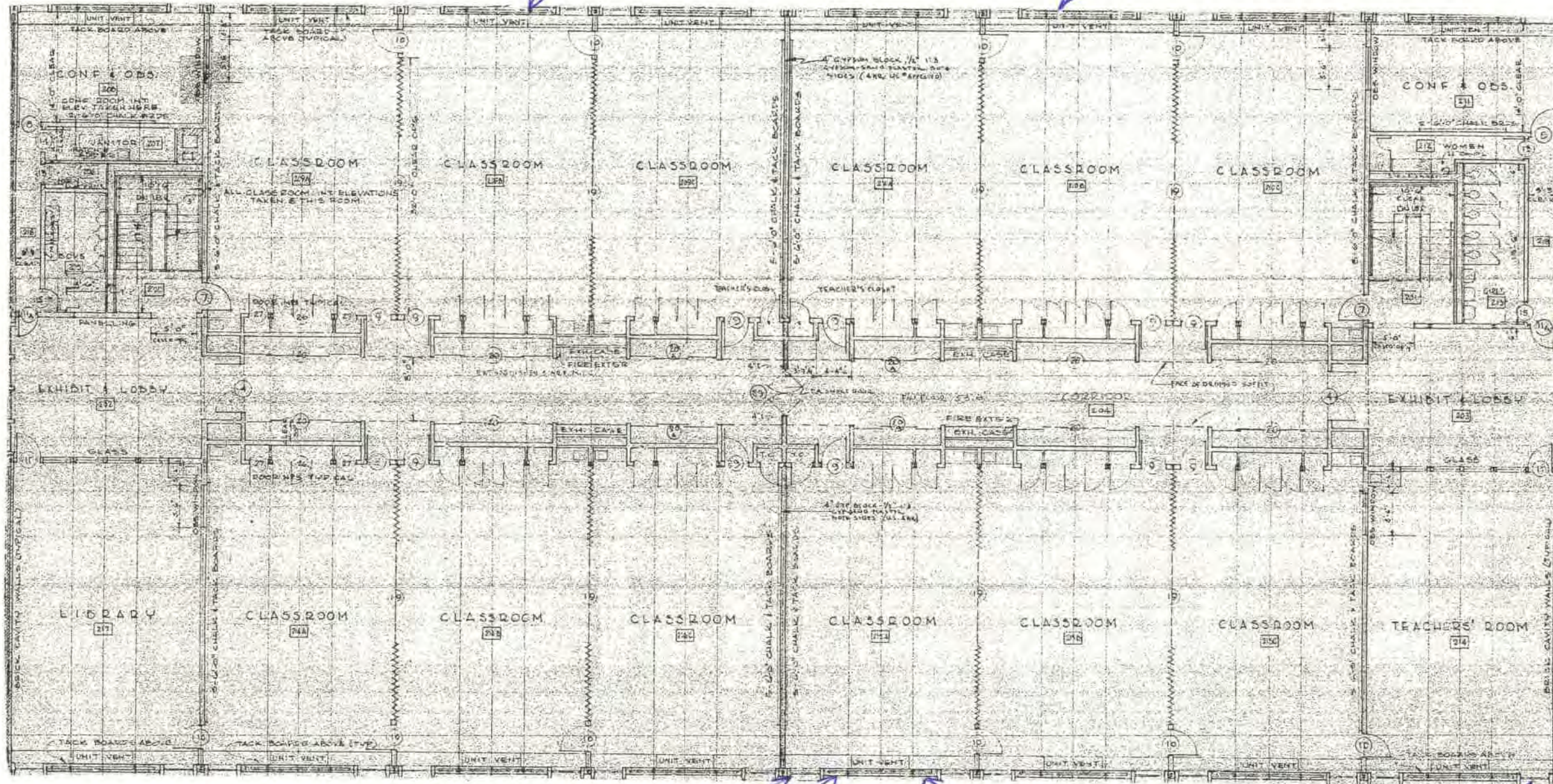
Street Level

Handwritten notes and dates with arrows pointing to specific locations on the plan:

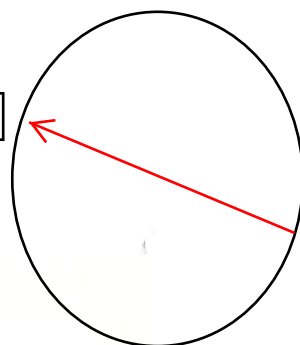
- 3/7/12 (7) - points to the top right corner.
- 3/14/12 (7) - points to the right side.
- 3/14/12 (9) - points to the left side.
- 3/14/12 (8) - points to the bottom left corner.
- 3/14/12 (9) - points to the bottom center.
- 3/7/12 (3) (4) - points to the bottom right corner.
- 3/26/12 (2) - points to the bottom right corner.
- 3/14/12 (3) (6) - points to the bottom right corner.

Horace Mann School
Newton, MA

SCALE: 1" = 25.6'



NORTH



Upper Level

APPENDIX A



Photo #1:	South Side Front Entrance View
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Photo #2:	East Side, North
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Photo #3:	West Side
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Photo #4:	North Side, Rear Entrance View
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Photo #5:	Location of caulk sample #3
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Photo #6:	Close-up of caulk sample #3
-----------	-----------------------------



Photo #7:	Location of glazing sample #4
-----------	-------------------------------



Photo #8:	Location of block samples 3/14/12; #3&6
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APPENDIX B



Phone: 508.628.5486
Fax: 508.628.5488

CHAIN OF CUSTODY

TOWN / CITY: Newton
STATE: MA

Specific Project Notes

Test for PCBs
5-day Turn around

[illegible]

RECEIVED
MAR 14 2012
By 2027

DATE/TIME:

DATE/TIME:

EMSL Analytical, Inc.

<http://www.emsl.com>

200 Route 130 North
Cinnaminson, NJ 08077
Phone: (856) 858-4800
Fax: (856) 858-4571

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Phone: (508) 628-5486
Fax: (508) 628-5488

3/23/2012

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 3/16/2012. The results are tabulated on the attached data pages for the following client designated project:

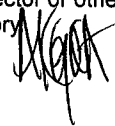
Horace Mann School Exterior Block and Soil

The reference number for these samples is EMSL Order #011201235. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:



Julie Smith - Laboratory Director or other approved
signatory



The test results contained within this report meet the requirements of NELAP and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 03036, NY 10896, PA 68-00367

The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory. The QC data associated with the sample results meet the recovery and precision requirements established by the NELAP, unless specifically indicated. All results for soil samples are reported on a dry weight basis, unless otherwise noted. This report may not be reproduced except in full and without written approval by EMSL Analytical, Inc.

The soil samples were received in plastic containers and above the temperature requirement.

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Customer ID: UEC63
 Customer PO:
 Received: 03/16/12 9:45 AM
 EMSL Order: 011201235

Fax: (508) 628-5488 Phone (508) 628-5486

Project: **Horace Mann School Exterior Block and Soil****Analytical Results**

Client Sample Description		1	Collected:		3/14/2012	Lab ID: 0001	
		Painted block 1" at windows			8:46:00 AM		
Method	Parameter	Result	Reporting		Units	Analysis Date	Analyst
			Limit				
3540C/8082A	Aroclor-1016	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50		mg/Kg	3/20/2012	ehernandez
Client Sample Description		2	Collected:		3/14/2012	Lab ID: 0002	
		Painted block 1" at windows			8:46:00 AM		
Method	Parameter	Result	Reporting		Units	Analysis Date	Analyst
			Limit				
3540C/8082A	Aroclor-1016	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1248	0.79	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50		mg/Kg	3/20/2012	ehernandez
Client Sample Description		3	Collected:		3/14/2012	Lab ID: 0003	
		Painted block 1" at windows			8:46:00 AM		
Method	Parameter	Result	Reporting		Units	Analysis Date	Analyst
			Limit				
3540C/8082A	Aroclor-1016	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1248	0.98	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50		mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50		mg/Kg	3/20/2012	ehernandez

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Customer ID: UEC63
 Customer PO:
 Received: 03/16/12 9:45 AM
 EMSL Order: 011201235

Fax: (508) 628-5488 Phone (508) 628-5486

Project: **Horace Mann School Exterior Block and Soil****Analytical Results**

Client Sample Description 3 **Collected:** 3/14/2012 **Lab ID:** 0003
 Painted block 1" at windows 8:46:00 AM

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	3/20/2012	ehernandez

Client Sample Description 4 **Collected:** 3/14/2012 **Lab ID:** 0004
 Painted block 3" at windows 8:46:00 AM

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	3/20/2012	ehernandez

Client Sample Description 5 **Collected:** 3/14/2012 **Lab ID:** 0005
 Painted block 3" at windows 8:46:00 AM

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	3/20/2012	ehernandez

Client Sample Description 6 **Collected:** 3/14/2012 **Lab ID:** 0006
 Painted block 3" at windows 8:46:00 AM

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	3/20/2012	ehernandez

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Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Customer ID: UEC63
Customer PO:
Received: 03/16/12 9:45 AM
EMSL Order: 011201235

Fax: (508) 628-5488 Phone (508) 628-5486

Project: **Horace Mann School Exterior Block and Soil****Analytical Results**

Client Sample Description 6 **Collected:** 3/14/2012 **Lab ID:** 0006
Painted block 3" at windows 8:46:00 AM

Method	Parameter	Result	Reporting		Analysis Date	Analyst
			Limit	Units		
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	3/20/2012	ehernandez

Client Sample Description 7 **Collected:** 3/14/2012 **Lab ID:** 0007
Soil, side 8:46:00 AM

Method	Parameter	Result	Reporting		Analysis Date	Analyst
			Limit	Units		
SM 2540G	Total Solids	91	N/A	%	3/21/2012	Ivu
3540C/8082A	Aroclor-1016	ND	54	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	54	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	54	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	54	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	54	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1254	170	54	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	54	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	54	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	54	µg/Kg	3/20/2012	ehernandez

Client Sample Description 8 **Collected:** 3/14/2012 **Lab ID:** 0008
Soil, side 8:46:00 AM

Method	Parameter	Result	Reporting		Analysis Date	Analyst
			Limit	Units		
SM 2540G	Total Solids	85	N/A	%	3/21/2012	Ivu
3540C/8082A	Aroclor-1016	ND	59	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	59	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	59	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	59	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	59	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1254	680	59	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	59	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	59	µg/Kg	3/20/2012	ehernandez

**EMSL Analytical, Inc.**

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Framingham, MA 01702

Customer ID: UEC63
Customer PO:
Received: 03/16/12 9:45 AM
EMSL Order: 011201235

Fax: (508) 628-5488 Phone (508) 628-5486

Project: **Horace Mann School Exterior Block and Soil****Analytical Results**

<i>Client Sample Description</i>	8	<i>Collected:</i>	3/14/2012	<i>Lab ID:</i>	0008
	Soil, side		8:46:00 AM		

<i>Method</i>	<i>Parameter</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units</i>	<i>Analysis Date</i>	<i>Analyst</i>
3540C/8082A	Aroclor-1268	ND	59	µg/Kg	3/20/2012	ehernandez

<i>Client Sample Description</i>	9	<i>Collected:</i>	3/14/2012	<i>Lab ID:</i>	0009
	Soil, front		8:46:00 AM		

<i>Method</i>	<i>Parameter</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units</i>	<i>Analysis Date</i>	<i>Analyst</i>
SM 2540G	Total Solids	86	N/A	%	3/21/2012	Ivu
3540C/8082A	Aroclor-1016	ND	57	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	57	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	57	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	57	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1248	ND	57	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1254	340	57	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	57	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	57	µg/Kg	3/20/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	57	µg/Kg	3/20/2012	ehernandez

Definitions:

ND - indicates that the analyte was not detected at the reporting limit

EMSL Analytical Inc.

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET

Lab Name: EMSL Analytical		Customer Sample#: MB 1 4274 CU
EMSL Sample ID:		Project:
Lab File ID: Y17020.D		Sample Matrix: Solid/Soil
Instrument ID: GC-ECD-Y		Sampling Date: 12:00:00 AM
Analyst: EH		Date Extracted: 3/19/2012
GC Column: CLPest I (0.25 mm)		Analysis Date: 3/20/2012 9:18:01 AM
GC Column 2: CLPest II (0.25 mm)		Sample wt/vol: 10 G
% Moisture: 0		Dilution Factor: 1
PH: 0		Concentrated Extract Vol: 10 (mL)
GPC Cleanup(Y/N): N		Injection Volume: 1 (ul)
Extraction Type: 3540C		Sulfur Cleanup: N
Method: SW846 8081/8082		

CAS NO	COMPOUND	Report Limit (mg/Kg)	CONC. (mg/Kg)	Q
12674-11-2	Aroclor 1016	0.050		U
11104-28-2	Aroclor 1221	0.050		U
11141-16-5	Aroclor 1232	0.050		U
53469-21-9	Aroclor 1242	0.050		U
12672-29-6	Aroclor 1248	0.050		U
11097-69-1	Aroclor 1254	0.050		U
11096-82-5	Aroclor 1260	0.050		U
37324-23-5	Aroclor 1262	0.050		U
11100-14-4	Aroclor 1268	0.050		U

Qualifier Definitions
 U = Undetected
 B = Compound detected in method blank
 E = Estimated value
 D = Dilution
 P = Results between the two columns differ >40%

EMSL Analytical Inc.

SOLID/SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY

Lab Name: EMSL Analytical Original LCS 1 4274 File ID: Y17020.D/Y17021.D * : Values outside of							
	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED mg/Kg	LCS CONC. mg/Kg	LCS REC%
1	Aroclor 1016	12674-11-2	31	122	1.50	1.38	92
2	Aroclor 1260	11096-82-5	33	130	1.50	1.51	101
Total Out							0 of 2

EMSL Analytical Inc.

SOLID/SOIL PESTICIDE/PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name:		EMSL Analytical		Original		1235-6 PCB MS 10X						
				File ID:		Y17033.D\Y17026.D\Y17027.D						
* : Values outside of												
COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	RPD LIMIT	SAMPLE CONC.	MS SPIKE ADDED mg/Kg	MS CONC. mg/Kg	MS REC%	MSD SPIKE ADDED mg/Kg	MSD CONC. mg/Kg	MSD REC%	RPD %
1 Aroclor 1016	12674-11-2	12	164	25	0.00	1.50	1.63	109	1.48	1.63	110	1
2 Aroclor 1260	11096-82-5	43	167	25	0.00	1.50	1.62	108	1.48	1.58	107	1
Total Out								0 of 2			0 of 2	0 of 2



Phone: 508.628.5486
Fax: 508.628.5488

CHAIN OF CUSTODY

TOWN / CITY: Newton

STATE: MA

Specific Project Notes

Test for PCBs

5-day turn around

[illegible]

DATE/TIME:

DATE/TIME:

DATE/TIME 9:30 AM

EMSL Analytical, Inc.

<http://www.emsl.com>

200 Route 130 North
Cinnaminson, NJ 08077
Phone: (856) 858-4800
Fax: (856) 858-4571

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Phone: (508) 628-5486
Fax: (508) 628-5488

4/3/2012

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 3/27/2012. The results are tabulated on the attached data pages for the following client designated project:

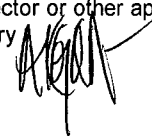
Horace Mann School Newton MA

The reference number for these samples is EMSL Order #011201399. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:



Julie Smith - Laboratory Director or other approved
signatory



The test results contained within this report meet the requirements of NELAC and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 03036, NY 10896, PA 68-00367

The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory. The QC data associated with the sample results meet the recovery and precision requirements established by the NELAP, unless specifically indicated. All results for soil samples are reported on a dry weight basis, unless otherwise noted. This report may not be reproduced except in full and without written approval by EMSL Analytical, Inc.

**EMSL Analytical, Inc.**

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Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Customer ID: UEC63
Customer PO:
Received: 03/27/12 9:30 AM
EMSL Order: 011201399

Fax: (508) 628-5488 Phone: (508) 628-5486

Project: **Horace Mann School Newton MA****Analytical Results**

Client Sample Description		1	Collected:	3/26/2012	Lab ID:	0001		
		Painted block 1" at windows						
Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst		
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1254	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/2/2012	ehernandez		
Client Sample Description		2	Collected:	3/26/2012	Lab ID:	0002		
		Painted block 1" at windows						
Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst		
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1254	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/2/2012	ehernandez		
Client Sample Description		3	Collected:	3/26/2012	Lab ID:	0003		
		Painted block 1" at windows						
Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst		
3540C/8082A	Aroclor-1016	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1221	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1232	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1242	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1248	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1254	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1260	ND	0.50	mg/Kg	4/2/2012	ehernandez		
3540C/8082A	Aroclor-1262	ND	0.50	mg/Kg	4/2/2012	ehernandez		

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Framingham, MA 01702

Customer ID: UEC63
Customer PO:
Received: 03/27/12 9:30 AM
EMSL Order: 011201399

Fax: (508) 628-5488 Phone: (508) 628-5486

Project: **Horace Mann School Newton MA**

Analytical Results

Client Sample Description 3
Painted block 1" at windows

Collected: 3/26/2012 *Lab ID:* 0003

<i>Method</i>	<i>Parameter</i>	<i>Reporting</i>			<i>Analysis Date</i>	<i>Analyst</i>
		<i>Result</i>	<i>Limit</i>	<i>Units</i>		
3540C/8082A	Aroclor-1268	ND	0.50	mg/Kg	4/2/2012	ehernandez

Definitions:

ND - indicates that the analyte was not detected at the reporting limit

EMSL Analytical Inc.

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET

Customer Sample#: MB 1 4291 CU	
Lab Name: EMSL Analytical	Project:
EMSL Sample ID:	Sample Matrix: Solid/Soil
Lab File ID: Y17269.D	Sampling Date: 12:00:00 AM
Instrument ID: GC-ECD-Y	Date Extracted: 3/30/2012
Analyst: EH	Analysis Date: 4/2/2012 3:28:26 PM
GC Column: CLPest I (0.25 mm)	Sample wt/vol: 10 G
GC Column 2: CLPest II (0.25 mm)	Dilution Factor: 1
% Moisture: 0	Concentrated Extract Vol: 10 (mL)
PH: 0	Injection Volume: 1 (ul)
GPC Cleanup(Y/N): N	Sulfur Cleanup: N
Extraction Type: 3540C	
Method: SW846 8081/8082	

CAS NO	COMPOUND	Report Limit (mg/Kg)	CONC. (mg/Kg)	Q
12674-11-2	Aroclor 1016	0.050		U
11104-28-2	Aroclor 1221	0.050		U
11141-16-5	Aroclor 1232	0.050		U
53469-21-9	Aroclor 1242	0.050		U
12672-29-6	Aroclor 1248	0.050		U
11097-69-1	Aroclor 1254	0.050		U
11096-82-5	Aroclor 1260	0.050		U
37324-23-5	Aroclor 1262	0.050		U
11100-14-4	Aroclor 1268	0.050		U

Qualifier Definitions
 U = Undetected
 B = Compound detected in method blank
 E = Estimated value
 D = Dilution
 P = Results between the two columns differ >40%

EMSL Analytical Inc.**SOLID/SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY**

Lab Name:		EMSL Analytical		Original	LCS 1 4291		
				File ID:	Y17269.D/Y17270.D		
* : Values outside of							
	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED mg/Kg	LCS CONC. mg/Kg	LCS REC%
1	Aroclor 1016	12674-11-2	31	122	1.50	0.916	61
2	Aroclor 1260	11096-82-5	33	130	1.50	1.15	77
Total Out							0 of 2

SOLID/SOIL PESTICIDE/PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Printed: 04/03/12 11:36:22 AM
SampleList: QC Batch 4291-1
ERM: T:\ERMS\8081-8082\8082soil.erm



12 Brewster Road
Framingham, MA 01702

011201089

BUILDING / SITE NAME: Horace Mann School

TOWN / CITY: Greuter

WORK AREA: exterior windows

STATE: MA

Specific Project Notes

Test for PCBs

72-hour turn around

SAMPLED BY: <i>Jason Bertha</i>	DATE/TIME: <i>3-7-12</i>	RECEIVED BY:	RECEIVED	DATE/TIME:
RELINQUISHED BY: <i>Jason Bertha</i>	DATE/TIME: <i>3-7-12</i>	RECEIVED IN LAB BY: <i>EM</i>		MAR 07 2012
			By <i>SA 1545</i>	

EMSL Analytical, Inc.

<http://www.emsl.com>

200 Route 130 North
Cinnaminson, NJ 08077
Phone: (856) 858-4800
Fax: (856) 858-4571

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

3/13/2012

Phone: (508) 628-5486
Fax: (508) 628-5488

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 3/8/2012. The results are tabulated on the attached data pages for the following client designated project:

Horace Mann School, Newton MA

The reference number for these samples is EMSL Order #011201089. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 858-4800.

Reviewed and Approved By:



Julie Smith - Laboratory Director or other approved
signatory



The test results contained within this report meet the requirements of NELAP and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 03036, NY 10896, PA 68-00367

The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory. The QC data associated with the sample results meet the recovery and precision requirements established by the NELAP, unless specifically indicated. All results for soil samples are reported on a dry weight basis, unless otherwise noted. This report may not be reproduced except in full and without written approval by EMSL Analytical, Inc.

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Customer ID: UEC63
Customer PO:
Received: 03/08/12 9:30 AM
EMSL Order: 011201089

Fax: (508) 628-5488 Phone (508) 628-5486

Project: Horace Mann School, Newton MA

Analytical Results

<i>Client Sample Description</i>	1 caulk window frames	<i>Collected:</i>	3/7/2012	<i>Lab ID:</i>	0001
----------------------------------	--------------------------	-------------------	----------	----------------	------

Method	Parameter	Result	Reporting		Analysis Date	Analyst
			Limit	Units		
3540C/8082A	Aroclor-1016	ND	470	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	470	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	470	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	470	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1248	3200	470	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	470	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	470	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	470	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	470	mg/Kg	3/9/2012	ehernandez

Client Sample Description	2	Collected:	3/7/2012	Lab ID:	0002
	glaze window frames				

Method	Parameter	Result	Reporting		Analysis Date	Analyst
			Limit	Units		
3540C/8082A	Aroclor-1016	ND	0.89	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.89	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.89	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.89	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1248	1.8	0.89	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1254	1.4	0.89	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.89	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.89	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.89	mg/Kg	3/13/2012	ehernandez

Client Sample Description	3	Collected:	3/7/2012	Lab ID:	0003
	caulk window frames				

Method	Parameter	Reporting			Analysis Date	Analyst
		Result	Limit	Units		
3540C/8082A	Aroclor-1016	ND	400	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	400	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	400	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	400	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1248	4000	400	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	400	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	400	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	400	mg/Kg	3/9/2012	ehernandez

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone: (856) 858-4800 Fax: (856) 858-4571 Email: jsmith@emsl.com

Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Fax: (508) 628-5488 Phone (508) 628-5486

Project: **Horace Mann School, Newton MA**

Customer ID: UEC63
 Customer PO:
 Received: 03/08/12 9:30 AM
 EMSL Order: 011201089

Analytical Results

Client Sample Description 3 **Collected:** 3/7/2012 **Lab ID:** 0003
 caulk window frames

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1268	ND	400	mg/Kg	3/9/2012	ehernandez

Client Sample Description 4 **Collected:** 3/7/2012 **Lab ID:** 0004
 glaze window frames

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.80	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.80	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	0.80	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	0.80	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1248	0.86	0.80	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1254	1.8	0.80	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	0.80	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	0.80	mg/Kg	3/13/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	0.80	mg/Kg	3/13/2012	ehernandez

Client Sample Description 5 **Collected:** 3/7/2012 **Lab ID:** 0005
 caulk window frames

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	330	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	330	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	330	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	330	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1248	2500	330	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	330	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	330	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	330	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	330	mg/Kg	3/9/2012	ehernandez

Client Sample Description 6 **Collected:** 3/7/2012 **Lab ID:** 0006
 glaze window frames

Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.81	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	0.81	mg/Kg	3/9/2012	ehernandez

**EMSL Analytical, Inc.**

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Attn: **Ammar Dieb**
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Customer ID: UEC63
 Customer PO:
 Received: 03/08/12 9:30 AM
 EMSL Order: 011201089

Fax: (508) 628-5488 Phone (508) 628-5486

Project: **Horace Mann School, Newton MA****Analytical Results**

Client Sample Description		6	Collected:		3/7/2012	Lab ID:		0006
		glaze window frames						
Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst		
3540C/8082A	Aroclor-1232	ND	0.81	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1242	ND	0.81	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1248	ND	0.81	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1254	ND	0.81	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1260	ND	0.81	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1262	ND	0.81	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1268	ND	0.81	mg/Kg	3/9/2012	ehernandez		
Client Sample Description		7	Collected:		3/7/2012	Lab ID:		0007
		caulk window frames						
Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst		
3540C/8082A	Aroclor-1016	ND	160	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1221	ND	160	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1232	ND	160	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1242	ND	160	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1248	1700	160	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1254	ND	160	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1260	ND	160	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1262	ND	160	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1268	ND	160	mg/Kg	3/9/2012	ehernandez		
Client Sample Description		8	Collected:		3/7/2012	Lab ID:		0008
		glaze window frames						
Method	Parameter	Result	Reporting Limit	Units	Analysis Date	Analyst		
3540C/8082A	Aroclor-1016	ND	0.91	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1221	ND	0.91	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1232	ND	0.91	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1242	ND	0.91	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1248	ND	0.91	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1254	ND	0.91	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1260	ND	0.91	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1262	ND	0.91	mg/Kg	3/9/2012	ehernandez		
3540C/8082A	Aroclor-1268	ND	0.91	mg/Kg	3/9/2012	ehernandez		

**EMSL Analytical, Inc.**

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Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Customer ID: UEC63
Customer PO:
Received: 03/08/12 9:30 AM
EMSL Order: 011201089

Fax: (508) 628-5488 Phone (508) 628-5486

Project: **Horace Mann School, Newton MA****Analytical Results**

<i>Client Sample Description</i>		<i>Collected:</i>	<i>3/7/2012</i>	<i>Lab ID: 0009</i>		
9 caulk window frames						
<i>Method</i>	<i>Parameter</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units</i>	<i>Analysis Date</i>	<i>Analyst</i>
3540C/8082A	Aroclor-1016	ND	170	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1221	ND	170	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1232	ND	170	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1242	ND	170	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1248	990	170	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1254	ND	170	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1260	ND	170	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1262	ND	170	mg/Kg	3/9/2012	ehernandez
3540C/8082A	Aroclor-1268	ND	170	mg/Kg	3/9/2012	ehernandez

Definitions:

ND - indicates that the analyte was not detected at the reporting limit

PESTICIDE/PCB ORGANICS ANALYSIS DATA SHEET

Lab Name: EMSL Analytical		Customer Sample#: MB 1 4259 CU
EMSL Sample ID:		Project:
Lab File ID: X17512.D		Sample Matrix: Solid/Soil
Instrument ID: ECD-X		Sampling Date: 12:00:00 AM
Analyst: EH		Date Extracted: 3/8/2012
GC Column: CLPest I (0.25 mm)		Analysis Date: 3/9/2012 12:35:00 PM
GC Column 2: CLPest II (0.25 mm)		Sample wt/vol: 10 G
% Moisture: 0		Dilution Factor: 1
PH: 0		Concentrated Extract Vol: 10 (mL)
GPC Cleanup(Y/N): N		Injection Volume: 1 (ul)
Extraction Type: 3540C		Sulfur Cleanup: N
Method: SW846 8081/8082		

CAS NO	COMPOUND	Report Limit (mg/Kg)	CONC. (mg/Kg)	Q
12674-11-2	Aroclor 1016	0.050		U
11104-28-2	Aroclor 1221	0.050		U
11141-16-5	Aroclor 1232	0.050		U
53469-21-9	Aroclor 1242	0.050		U
12672-29-6	Aroclor 1248	0.050		U
11097-69-1	Aroclor 1254	0.050		U
11096-82-5	Aroclor 1260	0.050		U
37324-23-5	Aroclor 1262	0.050		U
11100-14-4	Aroclor 1268	0.050		U

Qualifier Definitions
 U = Undetected
 B = Compound detected in method blank
 E = Estimated value
 D = Dilution
 P = Results between the two columns differ >40%

EMSL Analytical Inc.

SOLID/SOIL PESTICIDE/PCB LCS/QCS/ LFB RECOVERY

Lab Name: <u>EMSL Analytical</u> Original <u>LCS 1 4259</u>							
File ID: <u>X17512.D/X17513.D</u>							
* : Values outside of							
	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED mg/Kg	LCS CONC. mg/Kg	LCS REC%
1	Aroclor 1016	12674-11-2	31	122	1.50	1.35	90
2	Aroclor 1260	11096-82-5	33	130	1.50	1.34	89
Total Out							0 of 2

EMSL Analytical Inc.

SOLID/SOIL PESTICIDE/PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name:		EMSL Analytical		Original		1089-3 PCB MS 5X							
				File ID:		Y16841.D/Y16830.D/Y16831.D							
* : Values outside of													
COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	RPD LIMIT	SAMPLE CONC.	MS SPIKE ADDED mg/Kg	MS CONC. mg/Kg	MS REC%	MSD SPIKE ADDED mg/Kg	MSD CONC. mg/Kg	MSD REC%	RPD %	
1 Aroclor 1016	12674-11-2	12	164	25	0.00	5.95	1170	19600 *	5.91	1040	17636 *	11	
2 Aroclor 1260	11096-82-5	43	167	25	0.00	5.95	225	3772 *	5.91	201	3406 *	10	
				Total Out				2 of 2				0 of 2	

- The matrix spike/matrix spike duplicate (MS/MSD) recoveries fell outside control limits due to high concentration of Aroclor 1248 in the unspiked sample. The laboratory control sample (LCS) recoveries fell within control limits.



ANALYTICAL REPORT

Lab Number:	L1210883
Client:	Lord Associates, Inc. 1506 Providence Highway - Suite 30 Norwood, MA 02062
ATTN:	Ralph Tella
Phone:	(781) 255-5554
Project Name:	HORACE MANN PCBS
Project Number:	1866
Report Date:	06/27/12

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1210883-01	LS-5	NEWTON, MA	06/18/12 00:00
L1210883-02	LC-1	NEWTON, MA	06/18/12 00:00
L1210883-03	LC-2	NEWTON, MA	06/18/12 00:00
L1210883-04	LC-3	NEWTON, MA	06/18/12 00:00
L1210883-05	LC-4	NEWTON, MA	06/18/12 00:00
L1210883-06	LC-5	NEWTON, MA	06/18/12 00:00

Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

Case Narrative (continued)

PCBs


L1210883-01 has elevated detection limits due to the dilution required by the matrix interferences encountered during the concentration of the sample and the analytical dilution required by the sample matrix.

The surrogate recoveries for L1210883-01 are below the acceptance criteria for 2,4,5,6-Tetrachloro-m-xylene and Decachlorobiphenyl (both 0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

L1210883-02 has elevated detection limits due to the dilution required by matrix interferences encountered during the concentration of the sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Elizabeth Simmons

Title: Technical Director/Representative

Date: 06/27/12

ORGANICS

PCBS

Project Name: HORACE MANN PCBS**Lab Number:** L1210883**Project Number:** 1866**Report Date:** 06/27/12**SAMPLE RESULTS**

Lab ID: L1210883-01 **D**
Client ID: LS-5
Sample Location: NEWTON, MA
Matrix: Soil
Analytical Method: 1,8082
Analytical Date: 06/27/12 01:19
Analyst: BA
Percent Solids: 88%

Date Collected: 06/18/12 00:00
Date Received: 06/19/12
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 06/20/12 06:20
Cleanup Method1: EPA 3665A
Cleanup Date1: 06/21/12
Cleanup Method2: EPA 3660B
Cleanup Date2: 06/21/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	375	--	10
Aroclor 1221	ND		ug/kg	375	--	10
Aroclor 1232	ND		ug/kg	375	--	10
Aroclor 1242	ND		ug/kg	375	--	10
Aroclor 1248	ND		ug/kg	375	--	10
Aroclor 1254	676		ug/kg	375	--	10
Aroclor 1260	ND		ug/kg	375	--	10
Aroclor 1262	ND		ug/kg	375	--	10
Aroclor 1268	ND		ug/kg	375	--	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150
Decachlorobiphenyl	0	Q	30-150
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150
Decachlorobiphenyl	0	Q	30-150

Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

SAMPLE RESULTS

Lab ID: L1210883-02
 Client ID: LC-1
 Sample Location: NEWTON, MA
 Matrix: Concrete
 Analytical Method: 1,8082
 Analytical Date: 06/22/12 23:14
 Analyst: BA
 Percent Solids: 98%

Date Collected: 06/18/12 00:00
 Date Received: 06/19/12
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 06/20/12 06:00
 Cleanup Method1: EPA 3665A
 Cleanup Date1: 06/21/12
 Cleanup Method2: EPA 3660B
 Cleanup Date2: 06/21/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	178	--	2
Aroclor 1221	ND		ug/kg	178	--	2
Aroclor 1232	ND		ug/kg	178	--	2
Aroclor 1242	ND		ug/kg	178	--	2
Aroclor 1248	ND		ug/kg	178	--	2
Aroclor 1254	ND		ug/kg	178	--	2
Aroclor 1260	ND		ug/kg	178	--	2
Aroclor 1262	ND		ug/kg	178	--	2
Aroclor 1268	ND		ug/kg	178	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	99		30-150
Decachlorobiphenyl	86		30-150
2,4,5,6-Tetrachloro-m-xylene	77		30-150
Decachlorobiphenyl	81		30-150

Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

SAMPLE RESULTS

Lab ID: L1210883-03
 Client ID: LC-2
 Sample Location: NEWTON, MA
 Matrix: Concrete
 Analytical Method: 1,8082
 Analytical Date: 06/22/12 23:27
 Analyst: BA
 Percent Solids: 98%

Date Collected: 06/18/12 00:00
 Date Received: 06/19/12
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 06/20/12 06:00
 Cleanup Method1: EPA 3665A
 Cleanup Date1: 06/21/12
 Cleanup Method2: EPA 3660B
 Cleanup Date2: 06/21/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	88.6	--	1
Aroclor 1221	ND		ug/kg	88.6	--	1
Aroclor 1232	ND		ug/kg	88.6	--	1
Aroclor 1242	ND		ug/kg	88.6	--	1
Aroclor 1248	ND		ug/kg	88.6	--	1
Aroclor 1254	ND		ug/kg	88.6	--	1
Aroclor 1260	ND		ug/kg	88.6	--	1
Aroclor 1262	ND		ug/kg	88.6	--	1
Aroclor 1268	ND		ug/kg	88.6	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	96		30-150
Decachlorobiphenyl	104		30-150
2,4,5,6-Tetrachloro-m-xylene	98		30-150
Decachlorobiphenyl	99		30-150

Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

SAMPLE RESULTS

Lab ID: L1210883-04
 Client ID: LC-3
 Sample Location: NEWTON, MA
 Matrix: Concrete
 Analytical Method: 1,8082
 Analytical Date: 06/22/12 23:41
 Analyst: BA
 Percent Solids: 99%

Date Collected: 06/18/12 00:00
 Date Received: 06/19/12
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 06/20/12 06:00
 Cleanup Method1: EPA 3665A
 Cleanup Date1: 06/21/12
 Cleanup Method2: EPA 3660B
 Cleanup Date2: 06/21/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	96.2	--	1
Aroclor 1221	ND		ug/kg	96.2	--	1
Aroclor 1232	ND		ug/kg	96.2	--	1
Aroclor 1242	ND		ug/kg	96.2	--	1
Aroclor 1248	ND		ug/kg	96.2	--	1
Aroclor 1254	ND		ug/kg	96.2	--	1
Aroclor 1260	ND		ug/kg	96.2	--	1
Aroclor 1262	ND		ug/kg	96.2	--	1
Aroclor 1268	ND		ug/kg	96.2	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	59		30-150
Decachlorobiphenyl	96		30-150
2,4,5,6-Tetrachloro-m-xylene	57		30-150
Decachlorobiphenyl	89		30-150

Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

SAMPLE RESULTS

Lab ID: L1210883-05
 Client ID: LC-4
 Sample Location: NEWTON, MA
 Matrix: Concrete
 Analytical Method: 1,8082
 Analytical Date: 06/22/12 23:55
 Analyst: BA
 Percent Solids: 99%

Date Collected: 06/18/12 00:00
 Date Received: 06/19/12
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 06/20/12 06:00
 Cleanup Method1: EPA 3665A
 Cleanup Date1: 06/21/12
 Cleanup Method2: EPA 3660B
 Cleanup Date2: 06/21/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	96.4	--	1
Aroclor 1221	ND		ug/kg	96.4	--	1
Aroclor 1232	ND		ug/kg	96.4	--	1
Aroclor 1242	ND		ug/kg	96.4	--	1
Aroclor 1248	ND		ug/kg	96.4	--	1
Aroclor 1254	ND		ug/kg	96.4	--	1
Aroclor 1260	ND		ug/kg	96.4	--	1
Aroclor 1262	ND		ug/kg	96.4	--	1
Aroclor 1268	ND		ug/kg	96.4	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	77		30-150
Decachlorobiphenyl	78		30-150
2,4,5,6-Tetrachloro-m-xylene	80		30-150
Decachlorobiphenyl	82		30-150

Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

SAMPLE RESULTS

Lab ID: L1210883-06
 Client ID: LC-5
 Sample Location: NEWTON, MA
 Matrix: Concrete
 Analytical Method: 1,8082
 Analytical Date: 06/23/12 00:08
 Analyst: BA
 Percent Solids: 99%

Date Collected: 06/18/12 00:00
 Date Received: 06/19/12
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 06/20/12 06:00
 Cleanup Method1: EPA 3665A
 Cleanup Date1: 06/21/12
 Cleanup Method2: EPA 3660B
 Cleanup Date2: 06/21/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	91.2	--	1
Aroclor 1221	ND		ug/kg	91.2	--	1
Aroclor 1232	ND		ug/kg	91.2	--	1
Aroclor 1242	ND		ug/kg	91.2	--	1
Aroclor 1248	ND		ug/kg	91.2	--	1
Aroclor 1254	ND		ug/kg	91.2	--	1
Aroclor 1260	ND		ug/kg	91.2	--	1
Aroclor 1262	ND		ug/kg	91.2	--	1
Aroclor 1268	ND		ug/kg	91.2	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	92		30-150
Decachlorobiphenyl	89		30-150
2,4,5,6-Tetrachloro-m-xylene	91		30-150
Decachlorobiphenyl	92		30-150

Project Name: HORACE MANN PCBS**Lab Number:** L1210883**Project Number:** 1866**Report Date:** 06/27/12

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082
 Analytical Date: 06/23/12 00:22
 Analyst: BA

Extraction Method: EPA 3540C
 Extraction Date: 06/20/12 06:00
 Cleanup Method1: EPA 3665A
 Cleanup Date1: 06/21/12
 Cleanup Method2: EPA 3660B
 Cleanup Date2: 06/21/12

Parameter	Result	Qualifier	Units	RL	MDL
PCB by GC - Westborough Lab for sample(s): 02-06 Batch: WG543354-1					
Aroclor 1016	ND		ug/kg	95.4	--
Aroclor 1221	ND		ug/kg	95.4	--
Aroclor 1232	ND		ug/kg	95.4	--
Aroclor 1242	ND		ug/kg	95.4	--
Aroclor 1248	ND		ug/kg	95.4	--
Aroclor 1254	ND		ug/kg	95.4	--
Aroclor 1260	ND		ug/kg	95.4	--
Aroclor 1262	ND		ug/kg	95.4	--
Aroclor 1268	ND		ug/kg	95.4	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	83		30-150
Decachlorobiphenyl	87		30-150
2,4,5,6-Tetrachloro-m-xylene	86		30-150
Decachlorobiphenyl	87		30-150

Project Name: HORACE MANN PCBS**Lab Number:** L1210883**Project Number:** 1866**Report Date:** 06/27/12

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8082
 Analytical Date: 06/26/12 10:59
 Analyst: BA

Extraction Method: EPA 3540C
 Extraction Date: 06/20/12 06:20
 Cleanup Method1: EPA 3665A
 Cleanup Date1: 06/21/12
 Cleanup Method2: EPA 3660B
 Cleanup Date2: 06/21/12

Parameter	Result	Qualifier	Units	RL	MDL
PCB by GC - Westborough Lab for sample(s): 01 Batch: WG543355-1					
Aroclor 1016	ND		ug/kg	33.0	--
Aroclor 1221	ND		ug/kg	33.0	--
Aroclor 1232	ND		ug/kg	33.0	--
Aroclor 1242	ND		ug/kg	33.0	--
Aroclor 1248	ND		ug/kg	33.0	--
Aroclor 1254	ND		ug/kg	33.0	--
Aroclor 1260	ND		ug/kg	33.0	--
Aroclor 1262	ND		ug/kg	33.0	--
Aroclor 1268	ND		ug/kg	33.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	78		30-150
Decachlorobiphenyl	72		30-150
2,4,5,6-Tetrachloro-m-xylene	80		30-150
Decachlorobiphenyl	78		30-150

Lab Control Sample Analysis

Batch Quality Control

Project Name: HORACE MANN PCBS

Lab Number: L1210883

Project Number: 1866

Report Date: 06/27/12

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB by GC - Westborough Lab Associated sample(s): 02-06 Batch: WG543354-2 WG543354-3								
Aroclor 1016	70		70		40-140	0		50
Aroclor 1260	71		71		40-140	0		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	80		80		30-150
Decachlorobiphenyl	86		85		30-150
2,4,5,6-Tetrachloro-m-xylene	81		82		30-150
Decachlorobiphenyl	85		84		30-150

PCB by GC - Westborough Lab Associated sample(s): 01 Batch: WG543355-2 WG543355-3								
Aroclor 1016	68		72		40-140	6		50
Aroclor 1260	69		68		40-140	1		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	77		73		30-150
Decachlorobiphenyl	65		63		30-150
2,4,5,6-Tetrachloro-m-xylene	74		70		30-150
Decachlorobiphenyl	74		69		30-150

INORGANICS & MISCELLANEOUS

Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

SAMPLE RESULTS

Lab ID: L1210883-01
Client ID: LS-5
Sample Location: NEWTON, MA
Matrix: Soil

Date Collected: 06/18/12 00:00
Date Received: 06/19/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88		%	0.10	NA	1	-	06/19/12 23:50	30,2540G	RD



Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

SAMPLE RESULTS

Lab ID: L1210883-02
Client ID: LC-1
Sample Location: NEWTON, MA
Matrix: Concrete

Date Collected: 06/18/12 00:00
Date Received: 06/19/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	98		%	0.10	NA	1	-	06/19/12 22:40	30,2540G	RD



Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

SAMPLE RESULTS

Lab ID: L1210883-03
Client ID: LC-2
Sample Location: NEWTON, MA
Matrix: Concrete

Date Collected: 06/18/12 00:00
Date Received: 06/19/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	98		%	0.10	NA	1	-	06/19/12 22:40	30,2540G	RD



Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

SAMPLE RESULTS

Lab ID: L1210883-04
Client ID: LC-3
Sample Location: NEWTON, MA
Matrix: Concrete

Date Collected: 06/18/12 00:00
Date Received: 06/19/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	99		%	0.10	NA	1	-	06/19/12 22:40	30,2540G	RD



Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

SAMPLE RESULTS

Lab ID: L1210883-05
Client ID: LC-4
Sample Location: NEWTON, MA
Matrix: Concrete

Date Collected: 06/18/12 00:00
Date Received: 06/19/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	99		%	0.10	NA	1	-	06/19/12 22:40	30,2540G	RD



Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

SAMPLE RESULTS

Lab ID: L1210883-06
Client ID: LC-5
Sample Location: NEWTON, MA
Matrix: Concrete

Date Collected: 06/18/12 00:00
Date Received: 06/19/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	99		%	0.10	NA	1	-	06/19/12 22:40	30,2540G	RD



Lab Duplicate Analysis

Batch Quality Control

Project Name: HORACE MANN PCBS

Project Number: 1866

Lab Number: L1210883

Report Date: 06/27/12

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-06 QC Batch ID: WG543325-1 QC Sample: L1210883-02 Client ID: LC-1						
Solids, Total	98	98	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG543329-1 QC Sample: L1210922-01 Client ID: DUP Sample						
Solids, Total	83	84	%	1		20

Project Name: HORACE MANN PCBS**Lab Number:** L1210883**Project Number:** 1866**Report Date:** 06/27/12**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA**Cooler Information Custody Seal****Cooler**

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1210883-01A	Amber 250ml unpreserved	A	N/A	2.9	Y	Absent	TS(7),PCB-8082-3540C(14)
L1210883-02A	Amber 250ml unpreserved	A	N/A	2.9	Y	Absent	TS(7),PCB-8082-3540C(14)
L1210883-03A	Amber 250ml unpreserved	A	N/A	2.9	Y	Absent	TS(7),PCB-8082-3540C(14)
L1210883-04A	Amber 250ml unpreserved	A	N/A	2.9	Y	Absent	TS(7),PCB-8082-3540C(14)
L1210883-05A	Amber 250ml unpreserved	A	N/A	2.9	Y	Absent	TS(7),PCB-8082-3540C(14)
L1210883-06A	Amber 250ml unpreserved	A	N/A	2.9	Y	Absent	TS(7),PCB-8082-3540C(14)

*Values in parentheses indicate holding time in days



Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

GLOSSARY

Acronyms

EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	- Not Ignitable.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

Report Format: Data Usability Report



Project Name: HORACE MANN PCBS**Lab Number:** L1210883**Project Number:** 1866**Report Date:** 06/27/12**Data Qualifiers**

- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: HORACE MANN PCBS
Project Number: 1866

Lab Number: L1210883
Report Date: 06/27/12

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.
- 30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certificate/Approval Program Summary

Last revised May 11, 2012 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. **NELAP Accredited Solid Waste/Soil.**

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP) 504.1, Ethylene Dibromide (EDB) 504.1, 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D, Fecal Coliform-EC Medium 9221E).

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E), Enterolert, E.Coli 9223.

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Dalapon, Volatile Organics, Acid Extractables (Phenols), Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.

Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 2540C, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, 9010B, 9040B, 9030B, 7470A, 7196A, 2340B, EPA 200.7, 6010B, 200.8, 6020, 245.1, 1311, 1312, 3005A, Enterolert, 9223D, 9222D. Organic Parameters: 608, 624, 625, 8081A, 8082, 8330, 8151A, 8260B, 8270C, 3510C, 3630C, 5030B, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Solid Waste/Soil (Inorganic Parameters: 9010B, 9012A, 9014A, 9030B, 9040B, 9045C, 6010B, 7471A, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B. Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260B, 8270C, 8330, 8151A, 8081A, 8082, 3540C, 3546, 3580A, 3630C, 5030B, 5035.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.

Drinking Water (Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

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for: *Non-Potable Water* (Inorganic Parameters: (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn); 245.1, SM4500H,B, EPA 120.1,

SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B; Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. *NELAP Accredited.*

Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6010C, 6020, 6020A, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 350.2, 351.1, 353.2, 410.4, 420.1, 426C, 1664A, SW-846 9010B, 9030B, 9040B, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 3630C, 5030B, 8260B, 8270C, 8270D, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8081B, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 6010C, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050, 9065, 1311, 1312, 3005A, 3050B, 3060A. Organic Parameters: SW-846 3540C, 3546, 3550B, 3580A, 3630C, 5030B, 5035, 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330, 8151A, 8015B, 8082, 8082A, 8081A, 8081B.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. *NELAP Accredited.*

Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500CI-E, EPA 300.0, SM2120B, 2340B, SM4500F-BC, EPA 200.7, 200.8, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, 2540G, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 7470A, 5540C, SM4500H-B, 4500SO3-B, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, 3015, EPA 6010B, 6010C, 6020, 6020A, 7196A, 3060A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 1,4-Dioxane by NJ Modified 8270, 8015B, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 6010C, 6020, 6020A, 7196A, 3060A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 7471B, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3546, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. *NELAP Accredited.*

Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6010C, 6020, 6020A, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, 4500CN-CE, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 3015, 9010B, 9030B. Organic Parameters: EPA 624, 8260B, 8270C, 8270D, 625, 608, 8081A, 8081B, 8151A, 8330, 8082, 8082A, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1010, 1030, EPA 6010B, 6010C, 7196A, 7471A, 7471B, 9012A, 9014, 9065, 9050A, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8015B, 8015C, 8081A, 8081B, 8151A, 8330, 8082 8082A, 3540C, 3546, 3580, 3580A, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Drinking Water Program Certificate/Lab ID: 25700. (Inorganic Parameters: Chloride EPA 300.0. Organic Parameters: 524.2)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. **NELAP Accredited.**

Drinking Water (Organic Parameters: EPA 524.2, 504.1)

Non-Potable Water (Inorganic Parameters: EPA 1312, 3005A, 200.7, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P, BE. Organic Parameters: EPA 3510C, 3630C, 5030B, 625, 624, 608, 8081A, 8081B, 8082, 8082A, 8151A, 8260B, 8270C, 8270D, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 3060A, 6010B, 6010C, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3546, 3580A, 3630C, 5035, 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8260B, 8270C, 8270D, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. **NELAP Accredited via NY-DOH.**

Refer to MA-DEP Certificate for Potable and Non-Potable Water.

Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisison on Environmental Quality Certificate/Lab ID: T104704476-09-1. **NELAP Accredited.**

Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 S²⁻ D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Virginia Division of Consolidated Laboratory Services Certificate/Lab ID: 460195. **NELAP Accredited.**

Non-Potable Water (Inorganic Parameters: EPA 3005A, 3015, 1312, 6010B, 6010C, SM4500S-D, SM4500-CN-CE, Lachat 10-204-00-1-X. Organic Parameters: EPA 8260B)

Solid & Hazardous Waste (Inorganic Parameters: EPA 3050B, 1311, 1312, 6010B, 6010C, 9030B, 9010B, 9012A, 9014. Organic Parameters: EPA 5035, 5030B, 8260B, 8015B, 8015C.)

Department of Defense, L-A-B Certificate/Lab ID: L2217.

Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6010C, 6020, 6020A, 245.1, 245.2, 7470A, 9040B, 9010B, 180.1, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 4500CL-D, 5220D, 5310C, 2130B, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330A, 8082, 8082A, 8081A, 8081B, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 6010C, 7471A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 9012A, 9040B, 9045C, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330A/B-prep, 8082, 8082A, 8081A, 8081B, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

The following analytes are not included in our current NELAP/TNI Scope of Accreditation:

EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A**: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C**: Methyl naphthalene, Dimethyl naphthalene, Total Methylnaphthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625**: 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO₂ in a soil matrix, NO₃ in a soil matrix, SO₄ in a soil matrix. **EPA 9071**: Total Petroleum Hydrocarbons, Oil & Grease



ANALYTICAL REPORT

Lab Number:	L1210612
Client:	Lord Associates, Inc. 1506 Providence Highway - Suite 30 Norwood, MA 02062
ATTN:	Ralph Tella
Phone:	(781) 255-5554
Project Name:	HORACE MANN
Project Number:	1866
Report Date:	06/21/12

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: HORACE MANN
Project Number: 1866

Lab Number: L1210612
Report Date: 06/21/12

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1210612-01	LS-1	NEWTON	06/13/12 00:00
L1210612-02	LS-2	NEWTON	06/13/12 00:00
L1210612-03	LS-3	NEWTON	06/13/12 00:00
L1210612-04	LS-4	NEWTON	06/13/12 00:00

Project Name: HORACE MANN
Project Number: 1866

Lab Number: L1210612
Report Date: 06/21/12

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: HORACE MANN
Project Number: 1866

Lab Number: L1210612
Report Date: 06/21/12


Case Narrative (continued)

PCBs

L1210612-02 and -04 have elevated detection limits due to the dilutions required by matrix interferences encountered during the concentration of the samples.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Elizabeth Simmons

Title: Technical Director/Representative

Date: 06/21/12

ORGANICS

PCBS

Project Name: HORACE MANN**Lab Number:** L1210612**Project Number:** 1866**Report Date:** 06/21/12**SAMPLE RESULTS**

Lab ID: L1210612-01
Client ID: LS-1
Sample Location: NEWTON
Matrix: Soil
Analytical Method: 1,8082
Analytical Date: 06/18/12 10:53
Analyst: BA
Percent Solids: 63%

Date Collected: 06/13/12 00:00
Date Received: 06/14/12
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 06/15/12 01:40
Cleanup Method1: EPA 3665A
Cleanup Date1: 06/16/12
Cleanup Method2: EPA 3660B
Cleanup Date2: 06/16/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	51.2	--	1
Aroclor 1221	ND		ug/kg	51.2	--	1
Aroclor 1232	ND		ug/kg	51.2	--	1
Aroclor 1242	ND		ug/kg	51.2	--	1
Aroclor 1248	ND		ug/kg	51.2	--	1
Aroclor 1254	ND		ug/kg	51.2	--	1
Aroclor 1260	ND		ug/kg	51.2	--	1
Aroclor 1262	ND		ug/kg	51.2	--	1
Aroclor 1268	ND		ug/kg	51.2	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	63		30-150
Decachlorobiphenyl	47		30-150
2,4,5,6-Tetrachloro-m-xylene	64		30-150
Decachlorobiphenyl	67		30-150

Project Name: HORACE MANN**Lab Number:** L1210612**Project Number:** 1866**Report Date:** 06/21/12**SAMPLE RESULTS**

Lab ID: L1210612-02
Client ID: LS-2
Sample Location: NEWTON
Matrix: Soil
Analytical Method: 1,8082
Analytical Date: 06/18/12 11:07
Analyst: BA
Percent Solids: 76%

Date Collected: 06/13/12 00:00
Date Received: 06/14/12
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 06/15/12 01:40
Cleanup Method1: EPA 3665A
Cleanup Date1: 06/16/12
Cleanup Method2: EPA 3660B
Cleanup Date2: 06/16/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	84.8	--	2
Aroclor 1221	ND		ug/kg	84.8	--	2
Aroclor 1232	ND		ug/kg	84.8	--	2
Aroclor 1242	ND		ug/kg	84.8	--	2
Aroclor 1248	ND		ug/kg	84.8	--	2
Aroclor 1254	ND		ug/kg	84.8	--	2
Aroclor 1260	ND		ug/kg	84.8	--	2
Aroclor 1262	ND		ug/kg	84.8	--	2
Aroclor 1268	ND		ug/kg	84.8	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	45		30-150
Decachlorobiphenyl	30		30-150
2,4,5,6-Tetrachloro-m-xylene	40		30-150
Decachlorobiphenyl	39		30-150

Project Name: HORACE MANN**Lab Number:** L1210612**Project Number:** 1866**Report Date:** 06/21/12**SAMPLE RESULTS**

Lab ID: L1210612-03
Client ID: LS-3
Sample Location: NEWTON
Matrix: Soil
Analytical Method: 1,8082
Analytical Date: 06/18/12 11:21
Analyst: BA
Percent Solids: 80%

Date Collected: 06/13/12 00:00
Date Received: 06/14/12
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 06/15/12 01:40
Cleanup Method1: EPA 3665A
Cleanup Date1: 06/16/12
Cleanup Method2: EPA 3660B
Cleanup Date2: 06/16/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	41.1	--	1
Aroclor 1221	ND		ug/kg	41.1	--	1
Aroclor 1232	ND		ug/kg	41.1	--	1
Aroclor 1242	ND		ug/kg	41.1	--	1
Aroclor 1248	ND		ug/kg	41.1	--	1
Aroclor 1254	492		ug/kg	41.1	--	1
Aroclor 1260	ND		ug/kg	41.1	--	1
Aroclor 1262	ND		ug/kg	41.1	--	1
Aroclor 1268	ND		ug/kg	41.1	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	85		30-150
Decachlorobiphenyl	62		30-150
2,4,5,6-Tetrachloro-m-xylene	73		30-150
Decachlorobiphenyl	78		30-150

Project Name: HORACE MANN**Lab Number:** L1210612**Project Number:** 1866**Report Date:** 06/21/12**SAMPLE RESULTS**

Lab ID: L1210612-04
Client ID: LS-4
Sample Location: NEWTON
Matrix: Soil
Analytical Method: 1,8082
Analytical Date: 06/18/12 11:34
Analyst: BA
Percent Solids: 58%

Date Collected: 06/13/12 00:00
Date Received: 06/14/12
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 06/15/12 01:40
Cleanup Method1: EPA 3665A
Cleanup Date1: 06/16/12
Cleanup Method2: EPA 3660B
Cleanup Date2: 06/16/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	114	--	2
Aroclor 1221	ND		ug/kg	114	--	2
Aroclor 1232	ND		ug/kg	114	--	2
Aroclor 1242	ND		ug/kg	114	--	2
Aroclor 1248	ND		ug/kg	114	--	2
Aroclor 1254	ND		ug/kg	114	--	2
Aroclor 1260	ND		ug/kg	114	--	2
Aroclor 1262	ND		ug/kg	114	--	2
Aroclor 1268	ND		ug/kg	114	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	61		30-150
Decachlorobiphenyl	38		30-150
2,4,5,6-Tetrachloro-m-xylene	50		30-150
Decachlorobiphenyl	47		30-150

Project Name: HORACE MANN**Lab Number:** L1210612**Project Number:** 1866**Report Date:** 06/21/12

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082
 Analytical Date: 06/17/12 19:32
 Analyst: BA

Extraction Method: EPA 3540C
 Extraction Date: 06/15/12 01:40
 Cleanup Method1: EPA 3665A
 Cleanup Date1: 06/16/12
 Cleanup Method2: EPA 3660B
 Cleanup Date2: 06/16/12

Parameter	Result	Qualifier	Units	RL	MDL
PCB by GC - Westborough Lab for sample(s): 01-04 Batch: WG542354-1					
Aroclor 1016	ND		ug/kg	32.6	--
Aroclor 1221	ND		ug/kg	32.6	--
Aroclor 1232	ND		ug/kg	32.6	--
Aroclor 1242	ND		ug/kg	32.6	--
Aroclor 1248	ND		ug/kg	32.6	--
Aroclor 1254	ND		ug/kg	32.6	--
Aroclor 1260	ND		ug/kg	32.6	--
Aroclor 1262	ND		ug/kg	32.6	--
Aroclor 1268	ND		ug/kg	32.6	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	88		30-150
Decachlorobiphenyl	80		30-150
2,4,5,6-Tetrachloro-m-xylene	86		30-150
Decachlorobiphenyl	90		30-150

Lab Control Sample Analysis**Batch Quality Control****Project Name:** HORACE MANN**Project Number:** 1866**Lab Number:** L1210612**Report Date:** 06/21/12

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB by GC - Westborough Lab Associated sample(s): 01-04 Batch: WG542354-2 WG542354-3								
Aroclor 1016	94		95		40-140	1		50
Aroclor 1260	100		90		40-140	11		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	97		90		30-150
Decachlorobiphenyl	95		83		30-150
2,4,5,6-Tetrachloro-m-xylene	96		90		30-150
Decachlorobiphenyl	107		93		30-150

INORGANICS & MISCELLANEOUS

Project Name: HORACE MANN**Project Number:** 1866**Lab Number:** L1210612**Report Date:** 06/21/12**SAMPLE RESULTS****Lab ID:** L1210612-01**Client ID:** LS-1**Sample Location:** NEWTON**Matrix:** Soil**Date Collected:** 06/13/12 00:00**Date Received:** 06/14/12**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	63		%	0.10	NA	1	-	06/14/12 21:10	30,2540G	RD



Project Name: HORACE MANN**Project Number:** 1866**Lab Number:** L1210612**Report Date:** 06/21/12**SAMPLE RESULTS****Lab ID:** L1210612-02**Client ID:** LS-2**Sample Location:** NEWTON**Matrix:** Soil**Date Collected:** 06/13/12 00:00**Date Received:** 06/14/12**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76		%	0.10	NA	1	-	06/14/12 21:10	30,2540G	RD



Project Name: HORACE MANN**Project Number:** 1866**Lab Number:** L1210612**Report Date:** 06/21/12**SAMPLE RESULTS****Lab ID:** L1210612-03**Client ID:** LS-3**Sample Location:** NEWTON**Matrix:** Soil**Date Collected:** 06/13/12 00:00**Date Received:** 06/14/12**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80		%	0.10	NA	1	-	06/14/12 21:10	30,2540G	RD



Project Name: HORACE MANN**Project Number:** 1866**Lab Number:** L1210612**Report Date:** 06/21/12**SAMPLE RESULTS****Lab ID:** L1210612-04**Client ID:** LS-4**Sample Location:** NEWTON**Matrix:** Soil**Date Collected:** 06/13/12 00:00**Date Received:** 06/14/12**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	58		%	0.10	NA	1	-	06/14/12 21:10	30,2540G	RD



Project Name: HORACE MANN**Project Number:** 1866**Lab Duplicate Analysis****Batch Quality Control****Lab Number:** L1210612**Report Date:** 06/21/12

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG542308-1 QC Sample: L1210534-01 Client ID: DUP Sample						
Solids, Total	87	86	%	1		20

Project Name: HORACE MANN

Lab Number: L1210612

Project Number: 1866

Report Date: 06/21/12

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal**Cooler**

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1210612-01A	Amber 250ml unpreserved	A	N/A	3.1	Y	Absent	TS(7),PCB-8082-3540C(14)
L1210612-02A	Amber 250ml unpreserved	A	N/A	3.1	Y	Absent	TS(7),PCB-8082-3540C(14)
L1210612-03A	Amber 250ml unpreserved	A	N/A	3.1	Y	Absent	TS(7),PCB-8082-3540C(14)
L1210612-04A	Amber 250ml unpreserved	A	N/A	3.1	Y	Absent	TS(7),PCB-8082-3540C(14)

*Values in parentheses indicate holding time in days

Project Name: HORACE MANN
Project Number: 1866

Lab Number: L1210612
Report Date: 06/21/12

GLOSSARY

Acronyms

EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	- Not Ignitable.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- | | |
|-----------|---|
| A | - Spectra identified as "Aldol Condensation Product". |
| B | - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. |
| C | - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses. |
| D | - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte. |
| E | - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument. |
| G | - The concentration may be biased high due to matrix interferences (i.e., co-elution) with non-target compound(s). The result should be considered estimated. |
| H | - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection. |
| I | - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference. |
| M | - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte. |
| NJ | - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search. |

Report Format: Data Usability Report



Project Name: HORACE MANN**Lab Number:** L1210612**Project Number:** 1866**Report Date:** 06/21/12**Data Qualifiers**

- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name: HORACE MANN
Project Number: 1866

Lab Number: L1210612
Report Date: 06/21/12

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.
- 30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certificate/Approval Program Summary

Last revised May 11, 2012 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. **NELAP Accredited Solid Waste/Soil.**

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP) 504.1, Ethylene Dibromide (EDB) 504.1, 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D, Fecal Coliform-EC Medium 9221E).

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E), Enterolert, E.Coli 9223.

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Dalapon, Volatile Organics, Acid Extractables (Phenols), Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.

Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 2540C, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, 9010B, 9040B, 9030B, 7470A, 7196A, 2340B, EPA 200.7, 6010B, 200.8, 6020, 245.1, 1311, 1312, 3005A, Enterolert, 9223D, 9222D. Organic Parameters: 608, 624, 625, 8081A, 8082, 8330, 8151A, 8260B, 8270C, 3510C, 3630C, 5030B, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Solid Waste/Soil (Inorganic Parameters: 9010B, 9012A, 9014A, 9030B, 9040B, 9045C, 6010B, 7471A, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B. Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260B, 8270C, 8330, 8151A, 8081A, 8082, 3540C, 3546, 3580A, 3630C, 5030B, 5035.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.

Drinking Water (Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B; Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. *NELAP Accredited.*

Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6010C, 6020, 6020A, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 350.2, 351.1, 353.2, 410.4, 420.1, 426C, 1664A, SW-846 9010B, 9030B, 9040B, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 3630C, 5030B, 8260B, 8270C, 8270D, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8081B, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 6010C, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050, 9065, 1311, 1312, 3005A, 3050B, 3060A. Organic Parameters: SW-846 3540C, 3546, 3550B, 3580A, 3630C, 5030B, 5035, 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330, 8151A, 8015B, 8082, 8082A, 8081A, 8081B.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. *NELAP Accredited.*

Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500CI-E, EPA 300.0, SM2120B, 2340B, SM4500F-BC, EPA 200.7, 200.8, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, 2540G, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 7470A, 5540C, SM4500H-B, 4500SO3-B, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, 3015, EPA 6010B, 6010C, 6020, 6020A, 7196A, 3060A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 1,4-Dioxane by NJ Modified 8270, 8015B, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 6010C, 6020, 6020A, 7196A, 3060A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 7471B, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3546, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. *NELAP Accredited.*

Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6010C, 6020, 6020A, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, 4500CN-CE, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 3015, 9010B, 9030B. Organic Parameters: EPA 624, 8260B, 8270C, 8270D, 625, 608, 8081A, 8081B, 8151A, 8330, 8082, 8082A, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1010, 1030, EPA 6010B, 6010C, 7196A, 7471A, 7471B, 9012A, 9014, 9065, 9050A, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8015B, 8015C, 8081A, 8081B, 8151A, 8330, 8082 8082A, 3540C, 3546, 3580, 3580A, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Drinking Water Program Certificate/Lab ID: 25700. (Inorganic Parameters: Chloride EPA 300.0. Organic Parameters: 524.2)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. **NELAP Accredited.**
Drinking Water (Organic Parameters: EPA 524.2, 504.1)

Non-Potable Water (Inorganic Parameters: EPA 1312, 3005A, 200.7, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P, BE. Organic Parameters: EPA 3510C, 3630C, 5030B, 625, 624, 608, 8081A, 8081B, 8082, 8082A, 8151A, 8260B, 8270C, 8270D, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 3060A, 6010B, 6010C, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3546, 3580A, 3630C, 5035, 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8260B, 8270C, 8270D, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. **NELAP Accredited via NY-DOH.**

Refer to MA-DEP Certificate for Potable and Non-Potable Water.

Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commissoon on Environmental Quality Certificate/Lab ID: T104704476-09-1. **NELAP Accredited.**

Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 S²⁻ D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Virginia Division of Consolidated Laboratory Services Certificate/Lab ID: 460195. **NELAP Accredited.**

Non-Potable Water (Inorganic Parameters: EPA 3005A, 3015, 1312, 6010B, 6010C, SM4500S-D, SM4500-CN-CE, Lachat 10-204-00-1-X. Organic Parameters: EPA 8260B)

Solid & Hazardous Waste (Inorganic Parameters: EPA 3050B, 1311, 1312, 6010B, 6010C, 9030B, 9010B, 9012A, 9014. Organic Parameters: EPA 5035, 5030B, 8260B, 8015B, 8015C.)

Department of Defense, L-A-B Certificate/Lab ID: L2217.

Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6010C, 6020, 6020A, 245.1, 245.2, 7470A, 9040B, 9010B, 180.1, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 4500CL-D, 5220D, 5310C, 2130B, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330A, 8082, 8082A, 8081A, 8081B, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 6010C, 7471A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 9012A, 9040B, 9045C, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330A/B-prep, 8082, 8082A, 8081A, 8081B, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)


The following analytes are not included in our current NELAP/TNI Scope of Accreditation:

EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A**: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C**: Methyl naphthalene, Dimethyl naphthalene, Total Methylnaphthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625**: 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO₂ in a soil matrix, NO₃ in a soil matrix, SO₄ in a soil matrix. **EPA 9071**: Total Petroleum Hydrocarbons, Oil & Grease

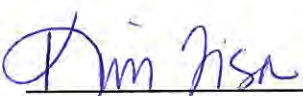
APPENDIX C

**STANDARD OPERATING PROCEDURE
FOR SAMPLING POROUS SURFACES
FOR POLYCHLORINATED BIPHENYLS (PCBs)**

**The Office of Environmental Measurement and Evaluation
EPA New England – Region 1
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North Chelmsford, MA 01863**

Prepared by: 
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5/5/11
Date

Reviewed by: 
Kim Tisa, TSCA PCB Coordinator

5/5/11
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Reviewed by: 
Jerry Keefe – EIA Team Leader

05/23/11
Date

Approved by: 
Dan Boudreau, EIA Chemistry Team Leader

5/23/11
Date

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Example of Custody Seal and Sample Label
Example of Chain of Custody Form

1.0 Scope and Application

- 1.1 This Standard Operating Procedure (SOP) is suitable for collection of a porous matrix sample for analysis of Polychlorinated Biphenyls (PCBs).
- 1.2 This SOP describes sampling techniques for both hard and soft porous surfaces.
 - 1.2.1 Hard surfaces, and most soft surfaces, can be sampled using an impact hammer drill to generate a uniform, finely ground, powder to be extracted and analyzed for PCBs. This procedure is primarily geared at providing enough sample quantity for two analyses. Hard porous surfaces include concrete, brick, asphalt, cement, sandstone, limestone, unglazed ceramics, and other possible PCB suspected material. This procedure may also be used on other softer porous surfaces, such as wood.
 - 1.2.2 Soft surfaces can be sampled using a chisel or sharp knife to generate a representative sample to be extracted and analyzed for PCBs. Soft porous surfaces include wood, wall plasterboard, low density plastics, rubber, caulking, and other PCB suspected material.
- 1.3 This SOP provides for collection of surface samples (0 – 0.5 inches) and delineation of PCB contamination throughout the core of the porous surface. The procedure can be used to sample the porous surface at distinctly different depth zones.

2.0 Method Summary

A one-inch or other sized diameter carbide drill bit is used in a rotary impact hammer drill to generate a fine powder, or other representative sample, suitable for extraction and analysis of PCBs from porous surfaces. This method also allows the use of chisels or knives for the collection of samples from soft porous surfaces for PCB analysis.

3.0 Definitions

- 3.1 Field/Bottle Blank: A sample container of the same lot as the containers used for the environmental samples. This evaluates PCB contamination introduced from the sample container(s) from a common lot.
- 3.2 Equipment/Rinse/Rinsate Blanks: A sample that is collected by pouring hexane over the sample collection equipment after decontamination and before sample collection. The sample is collected in the appropriate sample container identical to the sample containers. This represents background contamination resulting from the field equipment, sampling procedure, sample container, and shipment.

- 3.3 Field Replicates/Duplicates: Two or more samples collected at the same sampling location. Field replicates should be samples collected side by side. Field replicates represent the precision of the whole method, site heterogeneity, field sampling, and the laboratory analysis.
- 3.4 Field Split Samples: Two or more representative subsamples taken from one environmental sample in the field. Prior to splitting, the environmental sample is homogenized to correct for sample heterogeneity that would adversely impact data comparability. Field split samples are usually analyzed by different laboratories (interlaboratory comparison) or by the same laboratory (intralaboratory comparison). Field splits are used to assess sample handling procedures from field to laboratory and laboratory comparability.
- 3.5 Laboratory Quality Samples: Additional samples that will be collected for the laboratory's quality control program: matrix spike, matrix spike duplicate, laboratory duplicates, etc.
- 3.6 Proficiency Testing (PT)/Performance Evaluation (PE) Sample: A sample, the composition of which is unknown to the laboratory or analyst, provided to the analyst or laboratory to assess the capability to produce results within acceptable criteria. This is optional depending on the data quality objectives. If possible, it is recommended that the PE sample be of similar matrix as the porous surface(s) being sampled.
- 3.7 Porous Surface: Any surface that allows PCBs to penetrate or pass into itself including, but not limited to, paint or coating on metal; corroded metal; fibrous glass or glass wool; unglazed ceramics; ceramics with porous glaze; porous building stone such as sandstone, travertine, limestone, or coral rock; low density plastics such as Styrofoam and low density polyethylene; coated (varnished or painted) or uncoated wood; painted or unpainted concrete or cement; plaster; plasterboard; wallboard; rubber; caulking; fiberboard; chipboard; asphalt; or tar paper.
- 3.8 Shipping Container Temperature Blank: A water sample that is transported to the laboratory to measure the temperature of the samples in the cooler.

4.0 Health and Safety

- 4.1 Eye, respiratory, and hearing protection are required at all times during sample drilling. A properly fitted respirator is required for hard porous surface sampling. A respirator is recommended whenever there is a risk of inhalation of either particulate or volatilized PCBs during sampling.
- 4.2 All proper personal protection clothing and equipment must be worn.

4.3 When working with potentially hazardous materials or situations, follow EPA, OSHA, and specific health or safety procedures.

4.4 Care must be exercised when using an electrical drill and sharp cutting objects.

5.0 Interferences and Potential Problems

5.1 This sampling technique produces a finely ground uniform powder, which minimizes the physical matrix effects from variations in the sample consistency (i.e., particle size, uniformity, homogeneity, and surface condition). Matrix spike analysis of a sample is highly recommended to monitor for any matrix related interferences.

5.2 Nitrile gloves are recommended. Latex gloves must not be used due to possible phthalate contamination.

5.3 Interferences may result from using contaminated equipment, solvents, reagents, sample containers, or sampling in a disturbed area. The drill bit must be decontaminated between samples. (see Section 11.0.)

5.4 Cross contamination problems can be eliminated or minimized through the use of dedicated sampling equipment.

6.0 Personnel Qualifications

6.1 All field samplers working at hazardous materials/waste sites are required to take a 40 hour health and safety training course prior to engaging in any field activities. Subsequently, an 8 hour refresher health and safety course is required annually.

6.2 The field sampler should be trained by an experienced sampler before initiating this procedure.

6.3 All personnel shall be responsible for complying with all quality assurance/quality control requirements that pertain to their organizational/technical function.

7.0 Equipment and Supplies

7.1 This list varies with the matrix and if depth profiling is required

- Rotary impact hammer variable speed drill
- 1-inch or other suitable (1/2, 3/4, etc.) diameter carbide tip drill bits
- Steel chisel or sharp cutting knife, and hammer
- Brush and cloths to clean area
- Stainless steel scoopulas

Aluminum foil to collect the powder sample
1 quart Cubitainer with the top cut out to collect the powder sample
Aluminum weighing pans to collect the powder sample
Cleaned glass container (2 oz or 40 mL) with Teflon lined cap
Decontamination supplies: hexane, two small buckets, a scrub brush, detergent, deionized water, hexane squirt bottle, and paper towels
Dedicated vacuum cleaner with a disposable filter or a vacuum pump with a dust filter
Polyethylene tubing and Pasteur pipettes
Sample tags/labels, custody seals, and Chain-of-Custody form

8.0 Sampling Design

8.1 A sufficient number of samples must be collected to meet the data quality objectives of the project. If the source of the PCB contamination is regulated under the federal TSCA PCB Regulations at 40 CFR Part 761, the sampler should insure that the sampling design is sufficient to meet any investigation or verification sampling requirements. At a minimum, the following is recommended:

- 8.1.1 Suspected stained area (s) should be sampled.
- 8.1.2 At each separate location, collect at least 3 samples of each type of porous surface, regardless of the amount of each type of porous surface present.
- 8.1.3 In areas where PCB equipment was used or where PCBs were stored, samples should be collected at a frequency of 1 sample/100 square feet (ft²).

9.0 Sample Collection

9.1 Hard Porous Surfaces

- 9.1.1 Lock a 1-inch or another size diameter carbide drill bit into the impact hammer drill and plug the drill into an appropriate power source. For easy identification, sample locations may be pre-marked using a marker or paint. (Note: the actual drilling point must not be marked.) Remove any debris with a clean brush or cloth prior to drilling. All sampling decisions of this nature should be noted in the sampling logbook.
- 9.1.2 Use a Cubitainer with the top cut off or aluminum foil to contain the powdered sample. Begin drilling in the designated location. Apply steady even pressure and let the drill do the work. Applying too much pressure will generate excessive heat and dull the drill bit prematurely. The drill will provide a finely ground powder that can be easily collected.

- 9.1.3 Samples should be collected at ½-inch depth intervals. Thus, the initial surface sample should be collected from 0 – 0.5 inches. A ½-inch deep hole generates about 10 grams (20 mL) of powder. Multiple holes located closely adjacent to each other, may be needed to generate sufficient sample volumes for a PCB determination. It is strongly recommended that the analytical laboratory be consulted on the minimum sample size needed for PCB extraction and analysis.
- 9.1.4 Wall and Ceiling Sampling: A team of two samplers will be required for wall and ceiling sampling. The second person will hold a clean catch surface (e.g. an aluminum pan) below the drill to collect the falling powder. Alternatively, use the chuck-end of the drill bit and punch a hole through the center of the collection pan. The drill bit is then mounted through the pan and into the drill. For ceilings, the drill may be held at an angle to collect the powder. Thus the driller can be drilling at an angle while the assistant steadies the pan to catch the falling powder. As a precaution, it may be advantageous to tape a piece of plastic around the drill, just below the chuck, to avoid dust contaminating the body of the drill and entering the drill's cooling vents. Caution must be taken to prevent obstruction of the drill's cooling vents.

9.2 Soft Porous Surfaces

- 9.2.1 The procedure for the hard porous surface may be used for certain soft porous surfaces, such as wood.
- 9.2.2 Samples should be collected at no more than ½-inch depth intervals using a metal chisel or sharp cutting knife. Thus, the initial surface sample should be collected from 0 – 0.5 inches. It is important to collect at least 10 grams for analysis.
- 9.2.3 For soft porous surfaces, such as caulking and rubber, a representative sample can be collected using a metal chisel or sharp cutting knife.

9.3 Multiple Depth Sampling

- 9.3.1 Multiple Depth Sampling may not be applicable to certain porous surfaces, such as caulking.
- 9.3.2 Collect the surface sample as outlined in Section 9.1 or 9.2.
- 9.3.3 Use the vacuum pump or cleaner to clean out the hole.
- 9.3.4 To collect multiple depths there are two options.

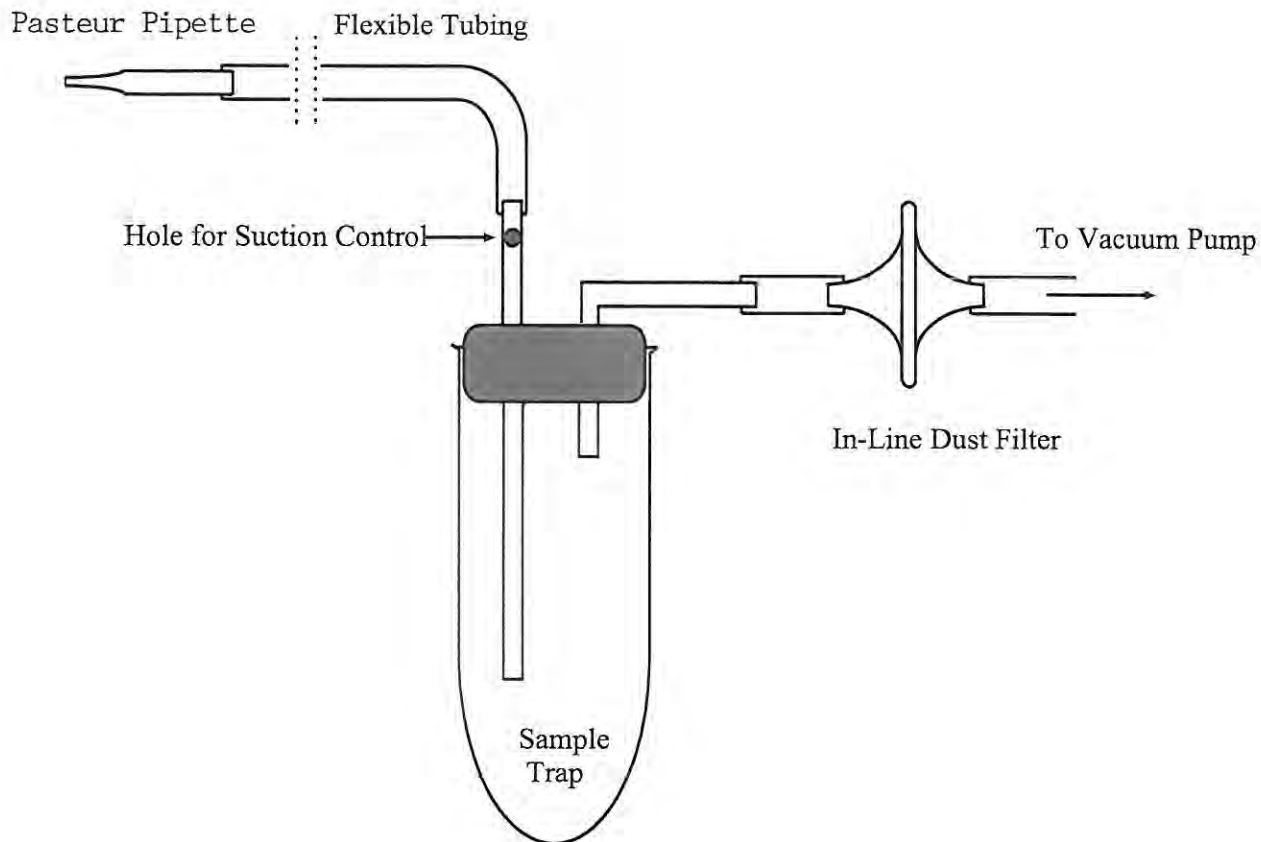
9.3.4.1 Option one: drill sequentially ½-inch increments with the 1 inch drill.

9.3.4.2 Option two: drill with the 1 inch bit and either make the hole larger or use a smaller bit to take the next ½- inch sample.

9.3.5 A stainless steel scoopula will make it easier to collect the sample from the bottom of the hole.

9.4 Vacuum Trap Design and Clean-out

The trap presented in Figure 1 is a convenient and thorough way for collecting and removing concrete powder from drilled holes. The trap system is designed to allow for control of the suction from the vacuum pump and easy trap clean-out between samples. Note, by placing a hole in the inlet tube (see Figure 1), a finger on the hand holding the trap can be used to control the suction at the sampling tip. Thus, when this hole is left completely open, there will be no suction, and the sampler can have complete control over where and what to sample. To change-out between samples the following steps should be taken: 1) the Pasteur pipette and piece of polyethylene tubing at the sample inlet should be replaced with new materials, 2) the portion of the rubber stopper and glass tubing that was in the trap should be wiped down with a clean damp paper towel (wetted with deionized water) and then dried with a fresh paper towel, 3) a clean pipe cleaner should be drawn through the glass inlet tube to remove any concrete dust present, and 4) the glass tube or flask used to collect the sample should swapped out with a clean decontaminated sample trap. Having several clean tubes or flasks on hand will facilitate change-out between samples.

Figure 1

Note: the holes should be vacuumed thoroughly to minimize any cross-contamination between sample depths and the bits should be decontaminated between samples. (See Section 11.0)

10.0 Sample Handling, Preservation, and Storage

- 10.1 Samples must be collected in glass containers for PCB analyses. In general, a 2-ounce sample container with a Teflon-lined cap (wide-mouth jars are preferred) will hold sufficient mass for most analyses. A 2-ounce jar can hold roughly 90 grams of sample.
- 10.2 Samples are to be shipped refrigerated and maintained at $\leq 6^{\circ}\text{C}$ until the time of extraction and analysis.
- 10.3 The suggested holding time for PCB samples is 14 days to extraction.

11.0 Decontamination

- 11.1 Assemble two decontamination buckets. The first bucket contains a detergent and potable water solution, and the second bucket is for rinsate. Place all used drill bits, hose for the vacuum cleaner, and utensils in the detergent and water bucket. Scrub each piece thoroughly using the scrub brush. Note, the powder does cling to the metal surfaces, so care should be taken during this step, especially with the twists and curves of the drill bits. Next, rinse each piece with water and hexane. Place the rinsed pieces on clean paper towels and individually dry and inspect each piece. Note: all pieces should be dry prior to reuse.
- 11.2 Lightly contaminated drill bits and utensils may be wiped with a hexane soaked cloth and hexane rinsed for decontamination.

12.0 Data and Record Management

- 12.1 All data and information collection should follow a Field Data Management SOP or Quality Assurance Project Plan (QAPP).
- 12.2 Follow the chain of custody procedures to release the samples to the laboratory. A copy is kept with the sampling records.
- 12.3 The field data is stored for at least 3 years.

13.0 Quality Control and Quality Assurance

- 13.1 Representative samples are required. The sampler will evaluate the site specific conditions to assure the sample will be representative.
- 13.2 All sampling equipment must be decontaminated prior to use and between each discrete sample.
- 13.3 All field Quality Control (QC) sample requirements in a Sample and Analysis Plan (SAP) or QAPP must be followed. The SAP or QAPP may involve field blanks, equipment blanks, field duplicates and/or the collection of extra samples for the laboratory's quality control program.
- 13.4 Field duplicates should be collected at a minimum frequency of 1 per 20 samples or 1 per non-related porous matrix, whichever is greater.

14.0 Waste Management and Pollution Prevention


- 14.1 During field sampling events there may be PCB and/or hazardous waste produced from the sample collection. The waste must be handled and disposed of in accordance with federal, state, and local regulations. The dust filter, and tubing if a vacuum pump is used, is disposed after each site investigation. This waste will be treated as PCB waste if the samples are positive for PCBs. It may be possible to manage or dispose of the waste produced at the site where the work was performed. If the site does not meet regulatory requirements for these types of activities, the waste must be transported to a facility permitted to manage and/or dispose of the waste.

15.0 References

1. Guidance for the Preparation of Standard Operating Procedures for Quality-Related Operations, QA/G-6, EPA/600/R-96/027, November 1995.
2. 40 CFR Part 761 – Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution In Commerce, and Use Prohibitions
3. Sample Container and Holding Time: RCRA SW 846, Chapter 4, Table 4.1, Revision 4, February, 2007.

Example of Sample Label and Custody Seal

U.S. ENVIRONMENTAL PROTECTION AGENCY – REGION I BOSTON, MASS.	
LABEL	NAME OF UNIT AND ADDRESS ENVIRONMENTAL SERVICES DIVISION 60 WESTVIEW STREET LEXINGTON, MASSACHUSETTS 02173
	DATE: YR/MO/DAY TIME STATION NO.
SAMPLE	SOURCE OF SAMPLE
	SAMPLE NO.
	SUB NO.
	PRESERVATIVE <input checked="" type="checkbox"/>
SAMPLING CREW(FIRST, INITIAL, LAST NAME)	
AMOUNT ANALYSIS	

 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY OFFICIAL SAMPLE SEAL	SAMPLE NO.	DATE
	SIGNATURE	
	PRINT NAME AND TITLE (<i>Inspector, Analyst or Technician</i>)	
SEAL BROKEN BY		DATE

EPA FORM 7500-2 (R7-75)

APPENDIX D

PUBLIC NOTICE OF PCB ABATEMENT PROJECT

Horace Mann Elementary School

As many of you know, The City of Newton is preparing for a renovation of the Horace Mann School. The scope of work will include replacement of all existing windows. As with all construction and renovation projects, The City of Newton remains committed to the safety and welfare of the entire community. Due to recent changes in Federal Guidelines and an increased public awareness, The United States Environmental Protection Agency (EPA) now recommends testing and the implementation of practices to minimize any potential exposure to Polychlorinated Biphenyls (PCB's). The focus of this initiative is to protect the health and safety of the community, the contractors performing the work and the environment.

Commencing **July XX**, 2012; contractors will begin to remove windows with caulking that has been identified as containing PCBs (polychlorinated biphenyls) in excess of thresholds set by the U.S. Environmental Protection Agency (EPA). PCBs were commonly used in the formulation of these materials until 1978. Recently, it has become recognized that at elevated concentrations, PCBs in building materials may represent a health hazard. Therefore, it has been advised that where it is feasible, all of these materials be removed for off-site disposal at an approved facility. Plans have been made to remove all PCB-containing material above threshold limits.

The EPA enforces strict guidelines for performing this work and your cooperation will be paramount in assisting the City to comply with these conditions. We ask that you observe all restrictions placed on entry into areas where this work is taking place. These areas will be clearly marked by caution tape and posted signs. You may see professional hazardous materials workers in white suits and respirators. The work areas will be monitored and tested to make sure that the work is done properly and that there are no releases to the environment. All testing will be made available to the public.

For more information, please contact: Stephanie Kane Gilman, Commissioner of Public Facilities, 617-796-1600.